

SEQUENCE LISTING

<110> AUJAME et al.

<120> Nucleic acids and polypeptides specific for pathogenic strains of the Neisseria genus

<130> P07180US00/BAS

<140> 09/830,433

<141> 2001-04-26

<150> FR 98 13 693

<151> 1998-10-30

<160> 129

<170> PatentIn Ver. 2.1

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<213> Neisseria meningitidis

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<221> CDS

<222> (1)..(855)

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cat ttg ggt gta aag atg tat tgc cac act gtt cct gcg att gcc gag 96
His Leu Gly Val Lys Met Tyr Ser His Thr Val Pro Ala Ile Ala Glu
20 25 30

ttg ata gcg aat gcc tac gat gca tgt gct acg gaa gtg gaa gtt agg 144
Leu Ile Ala Asn Ala Tyr Asp Ala Cys Ala Thr Glu Val Glu Val Arg
35 40 45

tta ttc gat aaa ccg gag cat aaa atc gtt atc aaa gat aat ggt ata 192
Leu Phe Asp Lys Pro Glu His Lys Ile Val Ile Lys Asp Asn Gly Ile
50 55 60

gga atg agc ttc gat gaa atc aat gat ttt tat ttg aga atc ggt cgg 240
Gly Met Ser Phe Asp Glu Ile Asn Asp Phe Tyr Leu Arg Ile Gly Arg
65 70 75 80

aac aga agg gaa gaa aaa caa gct tcc ccg tgc gga aga att cca acg 288
Asn Arg Arg Glu Glu Lys Gln Ala Ser Pro Cys Gly Arg Ile Pro Thr
85 90 95

ggt aaa aaa ggc ctt ggt aaa ttg gca tta ttc ggg ctt ggc aac aaa 336
Gly Lys Lys Gly Leu Gly Lys Leu Ala Leu Phe Gly Leu Gly Asn Lys
100 105 110

att gaa att tct act atc cag gga aac gaa agg gtt act ttt act ttg	384
Ile Glu Ile Ser Thr Ile Gln Gly Asn Glu Arg Val Thr Phe Thr Leu	
115 120 125	
gat tat gca gag att cga aga agc aag ggt att tat caa ccg gag ttt	432
Asp Tyr Ala Glu Ile Arg Arg Ser Lys Gly Ile Tyr Gln Pro Glu Phe	
130 135 140	
cga aaa gaa tct gtt gaa tcc aat atc gaa agc ggg aca acc ata act	480
Arg Lys Glu Ser Val Glu Ser Asn Ile Glu Ser Gly Thr Thr Ile Thr	
145 150 155 160	
tta acc gaa ctg acg aaa aag caa gga tat ccg tta gat aat tat gta	528
Leu Thr Glu Leu Thr Lys Lys Gln Gly Tyr Pro Leu Asp Asn Tyr Val	
165 170 175	
gag cat ctt tcc cgc ttg ttt gat ttt ccg gct cag gat ttt aaa atc	576
Glu His Leu Ser Arg Leu Phe Asp Phe Pro Ala Gln Asp Phe Lys Ile	
180 185 190	
aaa gta agc ttg aac ggc tct gaa cct aaa atc att gat gga aat cta	624
Lys Val Ser Leu Asn Gly Ser Glu Pro Lys Ile Ile Asp Gly Asn Leu	
195 200 205	
aaa tat gat ctt gtt acc cca caa ttc gaa tgg gaa tac cag gat tta	672
Lys Tyr Asp Leu Val Thr Pro Gln Phe Glu Trp Glu Tyr Gln Asp Leu	
210 215 220	
gca acc aat att tca tcg tta tct tca aaa ttc gaa cag tat gaa tac	720
Ala Thr Asn Ile Ser Ser Leu Ser Ser Lys Phe Glu Gln Tyr Glu Tyr	
225 230 235 240	
agc gga tta ata caa ggt aag ttc att aca acg gaa aaa cct tta aag	768
Ser Gly Leu Ile Gln Gly Lys Phe Ile Thr Thr Glu Lys Pro Leu Lys	
245 250 255	
aat aat atg aaa ggt att acc ttg ttt gcc aac ggc aga atg gta aat	816
Asn Asn Met Lys Gly Ile Thr Leu Phe Ala Asn Gly Arg Met Val Asn	
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<213> Neisseria meningitidis

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Leu Ile Ala Asn Ala Tyr Asp Ala Cys Ala Thr Glu Val Glu Val Arg
 35 40 45
 Leu Phe Asp Lys Pro Glu His Lys Ile Val Ile Lys Asp Asn Gly Ile
 50 55 60
 Gly Met Ser Phe Asp Glu Ile Asn Asp Phe Tyr Leu Arg Ile Gly Arg
 65 70 75 80
 Asn Arg Arg Glu Glu Lys Gln Ala Ser Pro Cys Gly Arg Ile Pro Thr
 85 90 95
 Gly Lys Lys Gly Leu Gly Lys Leu Ala Leu Phe Gly Leu Gly Asn Lys
 100 105 110
 Ile Glu Ile Ser Thr Ile Gln Gly Asn Glu Arg Val Thr Phe Thr Leu
 115 120 125
 Asp Tyr Ala Glu Ile Arg Arg Ser Lys Gly Ile Tyr Gln Pro Glu Phe
 130 135 140
 Arg Lys Glu Ser Val Glu Ser Asn Ile Glu Ser Gly Thr Thr Ile Thr
 145 150 155 160
 Leu Thr Glu Leu Thr Lys Lys Gln Gly Tyr Pro Leu Asp Asn Tyr Val
 165 170 175
 Glu His Leu Ser Arg Leu Phe Asp Phe Pro Ala Gln Asp Phe Lys Ile
 180 185 190
 Lys Val Ser Leu Asn Gly Ser Glu Pro Lys Ile Ile Asp Gly Asn Leu
 195 200 205
 Lys Tyr Asp Leu Val Thr Pro Gln Phe Glu Trp Glu Tyr Gln Asp Leu
 210 215 220
 Ala Thr Asn Ile Ser Ser Leu Ser Ser Lys Phe Glu Gln Tyr Glu Tyr
 225 230 235 240
 Ser Gly Leu Ile Gln Gly Lys Phe Ile Thr Thr Glu Lys Pro Leu Lys
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<222> (1)..(1098)

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Asp Lys Leu Leu Thr Glu Asn Thr His Ile Trp Leu Phe Ile Gly Val	
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tta cac aaa atg tta cct att agt ctg gtg caa tcc cta cta cgt ttc	144
Leu His Lys Met Leu Pro Ile Ser Leu Val Gln Ser Leu Leu Arg Phe	
35 40 45	
ggc gaa cgt gtc cat ctt gtc cag tta caa aaa acg ggg aaa aac gca	192
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ttg gat ttt tac ctg tcc tat tac ctc gga caa att acc gcc aca gac	240
Leu Asp Phe Tyr Leu Ser Tyr Tyr Leu Gly Gln Ile Thr Ala Thr Asp	
65 70 75 80	
ccc aat gcc caa atc ggc ata ctc tcg cgt gat gga gga tac gat gtt	288
Pro Asn Ala Gln Ile Gly Ile Leu Ser Arg Asp Gly Gly Tyr Asp Val	
85 90 95	
ctg gtc gaa cat att ttg aaa aac cac cag gcg aag ggt atc gtg cgc	336
Leu Val Glu His Ile Leu Lys Asn His Gln Ala Lys Gly Ile Val Arg	
100 105 110	
cta gcc aat ata gat gaa gta caa cat cag aaa att gct acc gaa ccg	384
Leu Ala Asn Ile Asp Glu Val Gln His Gln Lys Ile Ala Thr Glu Pro	
115 120 125	
cog tca gca ttg ctg gaa aac act cct cag cct gaa acc acc ctc aaa	432
Pro Ser Ala Leu Leu Glu Asn Thr Pro Gln Pro Glu Thr Thr Leu Lys	
130 135 140	
cca cag caa cca tta act tcc tat ttc caa gca gcc cta act gca ctg	480
Pro Gln Gln Pro Leu Thr Ser Tyr Phe Gln Ala Ala Leu Thr Ala Leu	
145 150 155 160	
cgc cgc ccc gac gct ttc cgc ccc tgc cgc ctg cat aac ctg cga caa	528
Arg Arg Pro Asp Ala Phe Arg Pro Cys Arg Leu His Asn Leu Arg Gln	
165 170 175	
aat ctg cgt aag cat att ttg agt gat ttg ttt aaa gaa aaa acc gat	576
Asn Leu Arg Lys His Ile Leu Ser Asp Leu Phe Lys Glu Lys Thr Asp	
180 185 190	
gaa gaa tgc gaa ata acc act gct aac gtt atc aat aaa ctc aaa gca	624
Glu Glu Cys Glu Ile Thr Thr Ala Asn Val Ile Asn Lys Leu Lys Ala	
195 200 205	
caa aac ttc atc agc att gat gaa cag gaa acc gtt tcc tac cat ctc	672

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225					230					235					240	
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Arg	Pro	Lys	Thr	Tyr	Ala	Asp	Phe	Gln	Ala	Val	Val	Gln	Asn	Arg	Ala	
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gat	gca	ctt	cac	tta	aca	gtc	ggt	acc	aac	gac	att	caa	tcc	ttt	gcg	816
Asp	Ala	Leu	His	Leu	Thr	Val	Gly	Thr	Asn	Asp	Ile	Gln	Ser	Phe	Ala	
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cga	cat	ttg	cgc	gac	caa	aac	ctg	atc	cgc	caa	aac	aat	ggg	aaa	att	864
Arg	His	Leu	Arg	Asp	Gln	Asn	Leu	Ile	Arg	Gln	Asn	Asn	Gly	Lys	Ile	
		275					280					285				
gaa	tat	gca	ccg	ttt	act	gaa	cct	aaa	cca	cag	cca	acg	ccc	aag	cag	912
Glu	Tyr	Ala	Pro	Phe	Thr	Glu	Pro	Lys	Pro	Gln	Pro	Thr	Pro	Lys	Gln	
	290					295					300					
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Pro	Lys	Lys	Thr	Ala	Trp	Glu	Pro	Asp	Glu	Ile	Ile	Trp	Lys	Lys	Val	
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att	gcc	gcg	tta	tcg	tta	aag	aac	cgt	cct	aat	aaa	acc	aaa	act	tta	1008
Ile	Ala	Ala	Leu	Ser	Leu	Lys	Asn	Arg	Pro	Asn	Lys	Thr	Lys	Thr	Leu	
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cgc	aat	aca	atc	cag	gca	ctc	aca	aaa	tcc	aat	gca	caa	gaa	act	gac	1056
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 Leu His Lys Met Leu Pro Ile Ser Leu Val Gln Ser Leu Leu Arg Phe
 35 40 45
 Gly Glu Arg Val His Leu Val Gln Leu Gln Lys Thr Gly Lys Asn Ala
 50 55 60

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Asp	Ala	Leu	His	Leu	Thr	Val	Gly	Thr	Asn	Asp	Ile	Gln	Ser	Phe	Ala	
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Arg	Asn	Thr	Ile	Gln	Ala	Leu	Thr	Lys	Ser	Asn	Ala	Gln	Glu	Thr	Asp	
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 Ala Ala Lys Met Ala Glu Thr Phe Ala Leu Thr Phe Met Ile Ala Ala
 35 40 45
 ctg tat ctg ttt gcg cgt tat aag gct tcg cgg ctg ctg att gcg gtg 192
 Leu Tyr Leu Phe Ala Arg Tyr Lys Ala Ser Arg Leu Leu Ile Ala Val
 50 55 60
 ttt ttc gcg ttc agc att att gcc aac aat gta cat tat gcg gtt tat 240
 Phe Phe Ala Phe Ser Ile Ile Ala Asn Asn Val His Tyr Ala Val Tyr
 65 70 75 80
 caa agt tgg atg acg ggc atc aat tat tgg ctg atg ctg aaa gag att 288
 Gln Ser Trp Met Thr Gly Ile Asn Tyr Trp Leu Met Leu Lys Glu Ile
 85 90 95
 acc gaa gtc ggc agt gcg ggc gcg tcg atg ttg gat aag ttg tgg ctg 336
 Thr Glu Val Gly Ser Ala Gly Ala Ser Met Leu Asp Lys Leu Trp Leu
 100 105 110
 cct gcg ttg tgg ggc gtg ttg gaa gtc atg ttg ttt tgc agc ctt gcc 384
 Pro Ala Leu Trp Gly Val Leu Glu Val Met Leu Phe Cys Ser Leu Ala
 115 120 125
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 Lys Phe His Arg Lys Thr His Phe Ser Ala Asp Ile Leu Phe Ala Phe
 130 135 140
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 145 150 155 160
 ggt att tcg ccc aaa ccg aca tac agc cgc atc aaa gcc aat tat ttc 528
 Gly Ile Ser Pro Lys Pro Thr Tyr Ser Arg Ile Lys Ala Asn Tyr Phe
 165 170 175

agc ttc ggt tat ttt gtc gga cgc gtg ttg ccg tat cag ttg ttt gat	576
Ser Phe Gly Tyr Phe Val Gly Arg Val Leu Pro Tyr Gln Leu Phe Asp	
180 185 190	
tta agc agg att ccc gcc ttt aag cag cct gct cca agc aaa atc ggg	624
Leu Ser Arg Ile Pro Ala Phe Lys Gln Pro Ala Pro Ser Lys Ile Gly	
195 200 205	
cag ggc agt gtt caa aat atc gtc ctg att atg ggc gaa agc gaa agc	672
Gln Gly Ser Val Gln Asn Ile Val Leu Ile Met Gly Glu Ser Glu Ser	
210 215 220	
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Ala Ala His Leu Lys Leu Phe Gly Tyr Gly Arg Glu Thr Ser Pro Phe	
225 230 235 240	
tta acc cgg ctg tcg caa gcc gat ttt aag ccg att gtg aaa caa agt	768
Leu Thr Arg Leu Ser Gln Ala Asp Phe Lys Pro Ile Val Lys Gln Ser	
245 250 255	
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Tyr Ser Ala Gly Phe Met Thr Ala Val Ser Leu Pro Ser Phe Phe Asn	
260 265 270	
gcg ata ccg cac gcc aac ggc ttg gaa caa atc agc ggc ggc gat act	864
Ala Ile Pro His Ala Asn Gly Leu Glu Gln Ile Ser Gly Gly Asp Thr	
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aat atg ttc cgc ctc gcc aaa gag cag ggc tat gaa acg tat ttt tac	912
Asn Met Phe Arg Leu Ala Lys Glu Gln Gly Tyr Glu Thr Tyr Phe Tyr	
290 295 300	
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Ser Ala Gln Ala Glu Asn Glu Met Ala Ile Leu Asn Leu Ile Gly Lys	
305 310 315 320	
aaa tgg ata gac cat ctg att cag ccg acg cag ctt ggc tac ggc aac	1008
Lys Trp Ile Asp His Leu Ile Gln Pro Thr Gln Leu Gly Tyr Gly Asn	
325 330 335	
ggc gac aat atg ccc gat gag aag ctg ctg ccg ctg ttc gac aaa atc	1056
Gly Asp Asn Met Pro Asp Glu Lys Leu Leu Pro Leu Phe Asp Lys Ile	
340 345 350	
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Asn Leu Gln Gln Gly Arg His Phe Ile Val Leu His Gln Arg Gly Ser	
355 360 365	
cac gcc cca tac agc gca ttg ttg cag cct caa gat aaa gta ttc ggc	1152
His Ala Pro Tyr Ser Ala Leu Leu Gln Pro Gln Asp Lys Val Phe Gly	
370 375 380	
gaa ctt att gtg gat aag tac gac aac acc atc cac aaa acc gac caa	1200
Glu Leu Ile Val Asp Lys Tyr Asp Asn Thr Ile His Lys Thr Asp Gln	
385 390 395 400	
atg att caa acc gta ttc gag cag ctg caa aag cag cct gac ggc aac	1248

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Ile	Tyr	Asn	Gln	Gly	Thr	Val	Gln	Pro	Asp	Ser	Tyr	Leu	Val	Pro	Leu		
		435					440					445					
gtg	ttg	tac	agc	tcg	aat	aag	gcc	gtg	caa	cag	gct	gcc	aac	cag	gct	1392	
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Phe	Ala	Pro	Cys	Glu	Ile	Ala	Phe	His	Gln	Gln	Leu	Ser	Thr	Phe	Leu		
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Ile	His	Thr	Leu	Gly	Tyr	Asp	Met	Pro	Val	Ser	Gly	Cys	Arg	Glu	Gly		
			485					490					495				
tcg	gta	acg	ggc	aac	ctg	att	acg	ggg	gat	gca	ggc	agc	ttg	aac	att	1536	
Ser	Val	Thr	Gly	Asn	Leu	Ile	Thr	Gly	Asp	Ala	Gly	Ser	Leu	Asn	Ile		
			500					505					510				
cgc	gac	ggc	aag	gcg	gaa	tat	gtt	tat	ccg	caa	tga					1572	
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 Leu Tyr Leu Phe Ala Arg Tyr Lys Ala Ser Arg Leu Leu Ile Ala Val
 50 55 60
 Phe Phe Ala Phe Ser Ile Ile Ala Asn Asn Val His Tyr Ala Val Tyr
 65 70 75 80
 Gln Ser Trp Met Thr Gly Ile Asn Tyr Trp Leu Met Leu Lys Glu Ile
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 Thr Glu Val Gly Ser Ala Gly Ala Ser Met Leu Asp Lys Leu Trp Leu

100					105					110					
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Ser	Phe	Gly	Tyr	Phe	Val	Gly	Arg	Val	Leu	Pro	Tyr	Gln	Leu	Phe	Asp
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225						230					235				240
Leu	Thr	Arg	Leu	Ser	Gln	Ala	Asp	Phe	Lys	Pro	Ile	Val	Lys	Gln	Ser
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Trp Leu Phe Ala Tyr Thr Ser Asp His Gly Gln Tyr Val Arg Gln Asp					
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Ile Tyr Asn Gln Gly Thr Val Gln Pro Asp Ser Tyr Leu Val Pro Leu					
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Val Leu Tyr Ser Ser Asn Lys Ala Val Gln Gln Ala Ala Asn Gln Ala					
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Phe Ala Pro Cys Glu Ile Ala Phe His Gln Gln Leu Ser Thr Phe Leu					
465		470		475	480
Ile His Thr Leu Gly Tyr Asp Met Pro Val Ser Gly Cys Arg Glu Gly					
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Met Ala Leu Ala Val Ala Thr Thr Leu Ser Ala Cys Leu Gly Gly Gly	
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Gly Gly Thr Ser Ala Pro Asp Phe Asn Ala Gly Gly Thr Gly Ile Gly	
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Ser Asn Ser Arg Ala Thr Thr Ala Lys Ser Ala Ala Val Ser Tyr Ala	
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Gly Ile Lys Asn Glu Met Cys Lys Asp Arg Ser Met Leu Cys Ala Gly	
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Arg Asp Asp Val Ala Val Thr Asp Arg Asp Ala Lys Ile Asn Ala Pro	

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Lys	Asn	Leu	Ile	Asn	Leu	Lys	Pro	Ala	Ile	Glu	Ala	Gly	Tyr	Thr	Gly					
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His	Ile	Asp	Val	Val	Ser	His	Ile	Ile	Gly	Gly	Arg	Ser	Val	Asp	Gly					
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Thr	His	Asp	Gly	Thr	Lys	Asn	Glu	Ile	Met	Ser	Ala	Ala	Ile	Arg	Asn					
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aat	tcg	gag	gag	cag	tac	cgc	caa	gcg	ttg	ctc	gcc	tat	tcc	ggc	ggg	912				
Asn	Ser	Glu	Glu	Gln	Tyr	Arg	Gln	Ala	Leu	Leu	Ala	Tyr	Ser	Gly	Gly					
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gat	aaa	aca	gac	gag	ggg	atc	cgc	ctg	atg	caa	cag	agc	gat	tac	ggc	960				
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Ala Ser Asn Asp Ala Gln Ala Gln Pro Asn Thr Leu Thr Leu Leu Pro	
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Phe Tyr Glu Lys Asp Ala Gln Lys Gly Ile Ile Thr Val Ala Gly Val	
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Asp Arg Ser Gly Glu Lys Phe Asn Gly Ser Asn His Cys Gly Ile Thr	
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Val Thr Gly Thr Ala Ala Leu Leu Leu Gln Lys Tyr Pro Trp Met Ser	
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Asn Asp Asn Leu Arg Thr Thr Leu Leu Thr Thr Ala Gln Asp Ile Gly	
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Ala Val Gly Val Asp Ser Lys Phe Gly Trp Gly Leu Leu Asp Ala Gly	
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Lys Ala Met Asn Gly Pro Ala Ser Phe Pro Phe Gly Asp Phe Thr Ala	
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Asp Thr Lys Gly Thr Ser Asp Ile Ala Tyr Ser Phe Arg Asn Asp Ile	
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Ser Gly Thr Gly Gly Leu Ile Lys Lys Gly Gly Ser Gln Leu Gln Leu	
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His Gly Asn Asn Thr Tyr Thr Gly Lys Thr Ile Ile Glu Gly Gly Ser	
515 520 525	
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Leu Val Leu Tyr Gly Asn Asn Lys Ser Asp Met Arg Val Glu Thr Lys	
530 535 540	

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Thr Val His Ile Lys Gly Asp Leu Gln Leu Gly Gly Glu Gly Thr Leu	
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625 630 635 640	
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Arg Asp Tyr Ser Phe Phe Thr Asn Ile Glu Thr Asp Gly Gly Leu Leu	
645 650 655	
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Ala Ser Leu Asp Ser Val Glu Lys Thr Ala Gly Ser Glu Gly Asp Thr	
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Leu Ser Tyr Tyr Val Arg Arg Gly Asn Ala Ala Arg Thr Ala Ser Ala	
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Ala Ala His Ser Ala Pro Ala Gly Leu Lys His Ala Val Glu Gln Gly	
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Gly Ser Asn Leu Glu Asn Leu Met Val Glu Leu Asp Ala Ser Glu Ser	
705 710 715 720	
tcc gca aca ccc gag acg gtt gaa act gcg gcc gcc gac cgc aca gat	2208
Ser Ala Thr Pro Glu Thr Val Glu Thr Ala Ala Ala Asp Arg Thr Asp	
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atg ccg ggc atc cgc ccc tac ggc gca act ttc cgc gca gcg gca gcc	2256
Met Pro Gly Ile Arg Pro Tyr Gly Ala Thr Phe Arg Ala Ala Ala Ala	
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Val Gln His Ala Asn Ala Ala Asp Gly Val Arg Ile Phe Asn Ser Leu	
755 760 765	
gcc gct acc gtc tat gcc gac agt acc gcc gcc cat gcc gat atg cag	2352

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Gln	Gly	Gly	Val	Glu	Gly	Lys	Met	Arg	Gly	Ser	Thr	Gln	Thr	Val	Gly	
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Ile	Ala	Ala	Lys	Thr	Gly	Glu	Asn	Thr	Thr	Ala	Ala	Ala	Thr	Leu	Gly	
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Met	Gly	His	Ser	Thr	Trp	Ser	Glu	Asn	Ser	Ala	Asn	Ala	Lys	Thr	Asp	
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Ser	Ile	Ser	Leu	Phe	Ala	Gly	Ile	Arg	His	Asp	Ala	Gly	Asp	Ile	Gly	
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tat	ctc	aaa	ggc	ctg	ttc	tcc	tac	gga	cgc	tac	aaa	aac	agc	atc	agc	2688
Tyr	Leu	Lys	Gly	Leu	Phe	Ser	Tyr	Gly	Arg	Tyr	Lys	Asn	Ser	Ile	Ser	
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cgc	agc	acc	ggt	gcg	gac	gaa	cat	gcg	gaa	ggc	agc	gtc	aac	ggc	acg	2736
Arg	Ser	Thr	Gly	Ala	Asp	Glu	His	Ala	Glu	Gly	Ser	Val	Asn	Gly	Thr	
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Leu	Met	Gln	Leu	Gly	Ala	Leu	Gly	Gly	Val	Asn	Val	Pro	Phe	Ala	Ala	
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Thr	Gly	Asp	Leu	Thr	Val	Glu	Gly	Gly	Leu	Arg	Tyr	Asp	Leu	Leu	Lys	
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Gln	Asp	Ala	Phe	Ala	Glu	Lys	Gly	Ser	Ala	Leu	Gly	Trp	Ser	Gly	Asn	
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Ser	Leu	Thr	Glu	Gly	Thr	Leu	Val	Gly	Leu	Ala	Gly	Leu	Lys	Leu	Ser	
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caa	ccc	ttg	agc	gat	aaa	gcc	gtc	ctg	ttt	gca	acg	gcg	ggc	gtg	gaa	2976
Gln	Pro	Leu	Ser	Asp	Lys	Ala	Val	Leu	Phe	Ala	Thr	Ala	Gly	Val	Glu	
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Arg Leu Val Ala Gly Leu Gly Ala Asp Val Glu Phe Gly Asn Gly Trp			
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Asn Gly Leu Ala Arg Tyr Ser Tyr Ala Gly Ser Lys Gln Tyr Gly Asn			
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Asn Tyr Lys Asn Tyr Thr Ala Tyr Met Arg Lys Glu Ala Pro Glu Asp			
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Ala	Ser	Asn	Asp	Ala	Gln	Ala	Gln	Pro	Asn	Thr	Leu	Thr	Leu	Leu	Pro		
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Ala	Val	Gly	Val	Asp	Ser	Lys	Phe	Gly	Trp	Gly	Leu	Leu	Asp	Ala	Gly		
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Lys	Ala	Met	Asn	Gly	Pro	Ala	Ser	Phe	Pro	Phe	Gly	Asp	Phe	Thr	Ala		
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Tyr	Thr	Arg	Leu	Gly	Lys	Leu	Leu	Lys	Val	Asp	Gly	Thr	Ala	Met	Thr	
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Ala	Ser	Leu	Asp	Ser	Val	Glu	Lys	Thr	Ala	Gly	Ser	Glu	Gly	Asp	Thr	
			660					665					670			
Leu	Ser	Tyr	Tyr	Val	Arg	Arg	Gly	Asn	Ala	Ala	Arg	Thr	Ala	Ser	Ala	
		675					680					685				
Ala	Ala	His	Ser	Ala	Pro	Ala	Gly	Leu	Lys	His	Ala	Val	Glu	Gln	Gly	
	690					695					700					
Gly	Ser	Asn	Leu	Glu	Asn	Leu	Met	Val	Glu	Leu	Asp	Ala	Ser	Glu	Ser	
705					710					715					720	
Ser	Ala	Thr	Pro	Glu	Thr	Val	Glu	Thr	Ala	Ala	Ala	Asp	Arg	Thr	Asp	
				725				730						735		
Met	Pro	Gly	Ile	Arg	Pro	Tyr	Gly	Ala	Thr	Phe	Arg	Ala	Ala	Ala	Ala	
			740					745					750			
Val	Gln	His	Ala	Asn	Ala	Ala	Asp	Gly	Val	Arg	Ile	Phe	Asn	Ser	Leu	
		755					760					765				
Ala	Ala	Thr	Val	Tyr	Ala	Asp	Ser	Thr	Ala	Ala	His	Ala	Asp	Met	Gln	
	770					775					780					

Gly Arg Arg Leu Lys Ala Val Ser Asp Gly Leu Asp His Asn Ala Thr
 785 790 795 800
 Gly Leu Arg Val Ile Ala Gln Thr Gln Gln Asp Gly Gly Thr Trp Glu
 805 810 815
 Gln Gly Gly Val Glu Gly Lys Met Arg Gly Ser Thr Gln Thr Val Gly
 820 825 830
 Ile Ala Ala Lys Thr Gly Glu Asn Thr Thr Ala Ala Ala Thr Leu Gly
 835 840 845
 Met Gly His Ser Thr Trp Ser Glu Asn Ser Ala Asn Ala Lys Thr Asp
 850 855 860
 Ser Ile Ser Leu Phe Ala Gly Ile Arg His Asp Ala Gly Asp Ile Gly
 865 870 875 880
 Tyr Leu Lys Gly Leu Phe Ser Tyr Gly Arg Tyr Lys Asn Ser Ile Ser
 885 890 895
 Arg Ser Thr Gly Ala Asp Glu His Ala Glu Gly Ser Val Asn Gly Thr
 900 905 910
 Leu Met Gln Leu Gly Ala Leu Gly Gly Val Asn Val Pro Phe Ala Ala
 915 920 925
 Thr Gly Asp Leu Thr Val Glu Gly Gly Leu Arg Tyr Asp Leu Leu Lys
 930 935 940
 Gln Asp Ala Phe Ala Glu Lys Gly Ser Ala Leu Gly Trp Ser Gly Asn
 945 950 955 960
 Ser Leu Thr Glu Gly Thr Leu Val Gly Leu Ala Gly Leu Lys Leu Ser
 965 970 975
 Gln Pro Leu Ser Asp Lys Ala Val Leu Phe Ala Thr Ala Gly Val Glu
 980 985 990
 Arg Asp Leu Asn Gly Arg Asp Tyr Thr Val Thr Gly Gly Phe Thr Gly
 995 1000 1005
 Ala Thr Ala Ala Thr Gly Lys Thr Gly Ala Arg Asn Met Pro His Thr
 1010 1015 1020
 Arg Leu Val Ala Gly Leu Gly Ala Asp Val Glu Phe Gly Asn Gly Trp
 1025 1030 1035 1040
 Asn Gly Leu Ala Arg Tyr Ser Tyr Ala Gly Ser Lys Gln Tyr Gly Asn
 1045 1050 1055
 His Ser Gly Arg Val Gly Val Gly Tyr Arg Phe
 1060 1065

<210> 9
 <211> 339
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> CDS
 <222> (1)..(336)

<400> 9
 atg aac aca cgc atc atc gtt tgc gct gcg ttc gtt gcg ttg gca tta 48
 Met Asn Thr Arg Ile Ile Val Ser Ala Ala Phe Val Ala Leu Ala Leu
 1 5 10 15

 gca ggt tgc ggc tca atc aat aat gta acc gtt tcc gac cag aaa ctt 96
 Ala Gly Cys Gly Ser Ile Asn Asn Val Thr Val Ser Asp Gln Lys Leu
 20 25 30

 cag gaa cgt gcc gcg ttt gcc ttg ggc gtc agc caa aat gcc gta aaa 144
 Gln Glu Arg Ala Ala Phe Ala Leu Gly Val Ser Gln Asn Ala Val Lys
 35 40 45

 atc agc aac cgc agc aat gaa agc ata cgc atc aac ttt acc gca act 192
 Ile Ser Asn Arg Ser Asn Glu Ser Ile Arg Ile Asn Phe Thr Ala Thr
 50 55 60

 gtg ggt aag cgc gtg agc caa tgc tat gtt acc agt gta atc agc aca 240
 Val Gly Lys Arg Val Ser Gln Cys Tyr Val Thr Ser Val Ile Ser Thr
 65 70 75 80

 atc ggc gtt acc act tcc gat gca att tgt ttg gga ggc gga acg cac 288
 Ile Gly Val Thr Thr Ser Asp Ala Ile Cys Leu Gly Gly Gly Thr His
 85 90 95

 aaa ggc aaa agt caa tgc aat gct ttg ctt aaa gcg gca ggc cgt tgc 336
 Lys Gly Lys Ser Gln Cys Asn Ala Leu Leu Lys Ala Ala Gly Arg Cys
 100 105 110

 taa 339

<210> 10
 <211> 112
 <212> PRT
 <213> Neisseria meningitidis

<400> 10
 Met Asn Thr Arg Ile Ile Val Ser Ala Ala Phe Val Ala Leu Ala Leu
 1 5 10 15

 Ala Gly Cys Gly Ser Ile Asn Asn Val Thr Val Ser Asp Gln Lys Leu
 20 25 30

 Gln Glu Arg Ala Ala Phe Ala Leu Gly Val Ser Gln Asn Ala Val Lys
 35 40 45

 Ile Ser Asn Arg Ser Asn Glu Ser Ile Arg Ile Asn Phe Thr Ala Thr

50	55	60
Val Gly Lys Arg Val Ser Gln Cys Tyr Val Thr Ser Val Ile Ser Thr		
65	70	75 80
Ile Gly Val Thr Thr Ser Asp Ala Ile Cys Leu Gly Gly Gly Thr His		
	85	90 95
Lys Gly Lys Ser Gln Cys Asn Ala Leu Leu Lys Ala Ala Gly Arg Cys		
	100	105 110

<210> 11
 <211> 1314
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> CDS
 <222> (1)..(1311)

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atg ctg acg ttt atc gga ctg ctg att atc ggg gtc atc gta tgg ctg	48
Met Leu Thr Phe Ile Gly Leu Leu Ile Ile Gly Val Ile Val Trp Leu	
1 5 10 15	
ctg ctg acg gaa aaa gtg tcg ccc atc atc gca tta atc ttg gtg ccg	96
Leu Leu Thr Glu Lys Val Ser Pro Ile Ile Ala Leu Ile Leu Val Pro	
20 25 30	
ctg ttt ggg gcg ttg ctg gcg ggg ttt gat gta tcc caa tta aaa gaa	144
Leu Phe Gly Ala Leu Leu Ala Gly Phe Asp Val Ser Gln Leu Lys Glu	
35 40 45	
ttt tat tcg ggc ggc acc aaa tcg gtg atg cag att gtg att atg ttt	192
Phe Tyr Ser Gly Gly Thr Lys Ser Val Met Gln Ile Val Ile Met Phe	
50 55 60	
atg ttt tcc att ttg ttt ttt gga atc atg aac gat gtg ggg ctg ttc	240
Met Phe Ser Ile Leu Phe Phe Gly Ile Met Asn Asp Val Gly Leu Phe	
65 70 75 80	
cgt ccg atg ata ggc ggt ttg att aag ctg act cgg ggt aat atc gtg	288
Arg Pro Met Ile Gly Gly Leu Ile Lys Leu Thr Arg Gly Asn Ile Val	
85 90 95	
gca gtg agt gtg ggg acg gtc ttg gtg tcg gtg gtg gcg cag ttg gac	336
Ala Val Ser Val Gly Thr Val Leu Val Ser Val Val Ala Gln Leu Asp	
100 105 110	
ggg gcg ggt gcg acg acg ttt tta ttg gtc gtc ccc gcc ctt ttg ccg	384
Gly Ala Gly Ala Thr Thr Phe Leu Leu Val Val Pro Ala Leu Leu Pro	
115 120 125	
ctt tac aag cgt ctg cat atg aat cct tac ctg ctg ttt ttg ctg ctg	432
Leu Tyr Lys Arg Leu His Met Asn Pro Tyr Leu Leu Phe Leu Leu Leu	

130	135	140	
act tcc agt gcg gga ttg att aac ctt ctg ccg tgg ggc ggg ccg acc			480
Thr Ser Ser Ala Gly Leu Ile Asn Leu Leu Pro Trp Gly Gly Pro Thr			
145	150	155	160
ggg cgg gtt gca agc gtg ttg ggc gca gat gtg ggc gaa ttg tat aaa			528
Gly Arg Val Ala Ser Val Leu Gly Ala Asp Val Gly Glu Leu Tyr Lys			
	165	170	175
cct ttg ttg acg gtg caa att atc ggt gtg gtg ttt atc ctt gcg ctg			576
Pro Leu Leu Thr Val Gln Ile Ile Gly Val Val Phe Ile Leu Ala Leu			
	180	185	190
tcc ctg ctt ttg ggt gtg cgt gaa aaa agg cgg att gtc cgg gag ttg			624
Ser Leu Leu Leu Gly Val Arg Glu Lys Arg Arg Ile Val Arg Glu Leu			
	195	200	205
ggc gcg ttg ccc gcc gtg gcg gat ttg ata aag ccg gtg cct ttg tcg			672
Gly Ala Leu Pro Ala Val Ala Asp Leu Ile Lys Pro Val Pro Leu Ser			
	210	215	220
gaa gaa gaa caa aaa ttg gcg cgt ccg aaa ctg ttt tgg tgg aat gtc			720
Glu Glu Glu Gln Lys Leu Ala Arg Pro Lys Leu Phe Trp Trp Asn Val			
	225	230	235
ctg ctg ttt ttg gcg gcg atg agc ctg ctt ttt tcg ggc atc ttc ccg			768
Leu Leu Phe Leu Ala Ala Met Ser Leu Phe Ser Gly Ile Phe Pro			
	245	250	255
ccg ggt tat gta ttt atg ctg gct gca acg gcg gcg ttg ctt ttg aat			816
Pro Gly Tyr Val Phe Met Leu Ala Ala Thr Ala Ala Leu Leu Leu Asn			
	260	265	270
tac cgc agc ccg cag gaa cag atg gag cgg att tat gcc cac gcc ggc			864
Tyr Arg Ser Pro Gln Glu Gln Met Glu Arg Ile Tyr Ala His Ala Gly			
	275	280	285
ggc gcg gtg atg atg gcg tcc att att ttg gcg gca ggt acg ttt ttg			912
Gly Ala Val Met Met Ala Ser Ile Ile Leu Ala Ala Gly Thr Phe Leu			
	290	295	300
ggg att ttg aag ggt gcg ggg atg ttg gac gcg att tcc aaa gac att			960
Gly Ile Leu Lys Gly Ala Gly Met Leu Asp Ala Ile Ser Lys Asp Ile			
	305	310	315
gtg cat atc ctg ccg gac gcg ctg ctg cct tat ctg cat att gcc atc			1008
Val His Ile Leu Pro Asp Ala Leu Leu Pro Tyr Leu His Ile Ala Ile			
	325	330	335
ggt gtg ttg ggc att ccg ctt gag ttg gtt ttg agt acg gac gct tat			1056
Gly Val Leu Gly Ile Pro Leu Glu Leu Val Leu Ser Thr Asp Ala Tyr			
	340	345	350
tat ttc gga ctg ttt ccg att gtg gag cag att acc tcg cag gcg ggc			1104
Tyr Phe Gly Leu Phe Pro Ile Val Glu Gln Ile Thr Ser Gln Ala Gly			
	355	360	365

gtg gcg ccc gaa gca gca ggt tat gcg atg ttg atc ggc agt atc gtc	1152
Val Ala Pro Glu Ala Ala Gly Tyr Ala Met Leu Ile Gly Ser Ile Val	
370 375 380	

ggc act ttt gtt acg ccg ctt tcg ccg gct ttg tgg atg ggc ttg ggt	1200
Gly Thr Phe Val Thr Pro Leu Ser Pro Ala Leu Trp Met Gly Leu Gly	
385 390 395 400	

ttg gcg aaa ttg tcg atg ggc aaa cac atc cgt tat tcg ttt ttt tgg	1248
Leu Ala Lys Leu Ser Met Gly Lys His Ile Arg Tyr Ser Phe Phe Trp	
405 410 415	

gcg tgg ggt ttg tcg ctg gcg ata ttg gcc agt tcg ata gcg gca gga	1296
Ala Trp Gly Leu Ser Leu Ala Ile Leu Ala Ser Ser Ile Ala Ala Gly	
420 425 430	

atc gtg cct ctg ccg taa	1314
Ile Val Pro Leu Pro	
435	

<210> 12
 <211> 437
 <212> PRT
 <213> Neisseria meningitidis

<400> 12	
Met Leu Thr Phe Ile Gly Leu Leu Ile Ile Gly Val Ile Val Trp Leu	
1 5 10 15	
Leu Leu Thr Glu Lys Val Ser Pro Ile Ile Ala Leu Ile Leu Val Pro	
20 25 30	
Leu Phe Gly Ala Leu Leu Ala Gly Phe Asp Val Ser Gln Leu Lys Glu	
35 40 45	
Phe Tyr Ser Gly Gly Thr Lys Ser Val Met Gln Ile Val Ile Met Phe	
50 55 60	
Met Phe Ser Ile Leu Phe Phe Gly Ile Met Asn Asp Val Gly Leu Phe	
65 70 75 80	
Arg Pro Met Ile Gly Gly Leu Ile Lys Leu Thr Arg Gly Asn Ile Val	
85 90 95	
Ala Val Ser Val Gly Thr Val Leu Val Ser Val Val Ala Gln Leu Asp	
100 105 110	
Gly Ala Gly Ala Thr Thr Phe Leu Leu Val Val Pro Ala Leu Leu Pro	
115 120 125	
Leu Tyr Lys Arg Leu His Met Asn Pro Tyr Leu Leu Phe Leu Leu Leu	
130 135 140	
Thr Ser Ser Ala Gly Leu Ile Asn Leu Leu Pro Trp Gly Gly Pro Thr	
145 150 155 160	

Gly	Arg	Val	Ala	Ser	Val	Leu	Gly	Ala	Asp	Val	Gly	Glu	Leu	Tyr	Lys	165	170	175
Pro	Leu	Leu	Thr	Val	Gln	Ile	Ile	Gly	Val	Val	Phe	Ile	Leu	Ala	Leu	180	185	190
Ser	Leu	Leu	Leu	Gly	Val	Arg	Glu	Lys	Arg	Arg	Ile	Val	Arg	Glu	Leu	195	200	205
Gly	Ala	Leu	Pro	Ala	Val	Ala	Asp	Leu	Ile	Lys	Pro	Val	Pro	Leu	Ser	210	215	220
Glu	Glu	Glu	Gln	Lys	Leu	Ala	Arg	Pro	Lys	Leu	Phe	Trp	Trp	Asn	Val	225	230	235
Leu	Leu	Phe	Leu	Ala	Ala	Met	Ser	Leu	Leu	Phe	Ser	Gly	Ile	Phe	Pro	245	250	255
Pro	Gly	Tyr	Val	Phe	Met	Leu	Ala	Ala	Thr	Ala	Ala	Leu	Leu	Leu	Asn	260	265	270
Tyr	Arg	Ser	Pro	Gln	Glu	Gln	Met	Glu	Arg	Ile	Tyr	Ala	His	Ala	Gly	275	280	285
Gly	Ala	Val	Met	Met	Ala	Ser	Ile	Ile	Leu	Ala	Ala	Gly	Thr	Phe	Leu	290	295	300
Gly	Ile	Leu	Lys	Gly	Ala	Gly	Met	Leu	Asp	Ala	Ile	Ser	Lys	Asp	Ile	305	310	315
Val	His	Ile	Leu	Pro	Asp	Ala	Leu	Leu	Pro	Tyr	Leu	His	Ile	Ala	Ile	325	330	335
Gly	Val	Leu	Gly	Ile	Pro	Leu	Glu	Leu	Val	Leu	Ser	Thr	Asp	Ala	Tyr	340	345	350
Tyr	Phe	Gly	Leu	Phe	Pro	Ile	Val	Glu	Gln	Ile	Thr	Ser	Gln	Ala	Gly	355	360	365
Val	Ala	Pro	Glu	Ala	Ala	Gly	Tyr	Ala	Met	Leu	Ile	Gly	Ser	Ile	Val	370	375	380
Gly	Thr	Phe	Val	Thr	Pro	Leu	Ser	Pro	Ala	Leu	Trp	Met	Gly	Leu	Gly	385	390	395
Leu	Ala	Lys	Leu	Ser	Met	Gly	Lys	His	Ile	Arg	Tyr	Ser	Phe	Phe	Trp	405	410	415
Ala	Trp	Gly	Leu	Ser	Leu	Ala	Ile	Leu	Ala	Ser	Ser	Ile	Ala	Ala	Gly	420	425	430
Ile	Val	Pro	Leu	Pro												435		

<210> 13
 <211> 1155
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> CDS
 <222> (1)..(1152)

<400> 13
 atg ggc atc cat ctc gac ttc ggc att agt cct aaa acg ttc cga cag 48
 Met Gly Ile His Leu Asp Phe Gly Ile Ser Pro Lys Thr Phe Arg Gln
 1 5 10 15

act tat ctg tat caa aag ccc aag ctc ttt aaa gga gcg gtt cgg aat 96
 Thr Tyr Leu Tyr Gln Lys Pro Lys Leu Phe Lys Gly Ala Val Arg Asn
 20 25 30

ctc gaa gcc gca tct tgt aaa tat atc aac gag ata tac caa cga gca 144
 Leu Glu Ala Ala Ser Cys Lys Tyr Ile Asn Glu Ile Tyr Gln Arg Ala
 35 40 45

gac cca acc gca ccg ctg ttt cat ctg cgt aaa aaa ggc gca atc gtt 192
 Asp Pro Thr Ala Pro Leu Phe His Leu Arg Lys Lys Gly Ala Ile Val
 50 55 60

cct aaa gaa gaa tac gtc gaa agt ttc gac gat ttg ggc aaa act cgc 240
 Pro Lys Glu Glu Tyr Val Glu Ser Phe Asp Leu Gly Lys Thr Arg
 65 70 75 80

tac cgt ttt att aaa tcc gtt atc tac gaa cat atg aag aat ggt gcg 288
 Tyr Arg Phe Ile Lys Ser Val Ile Tyr Glu His Met Lys Asn Gly Ala
 85 90 95

tcg tta gtc tat aac cat att aac aac gag ccg ttt tca gac cat atc 336
 Ser Leu Val Tyr Asn His Ile Asn Asn Glu Pro Phe Ser Asp His Ile
 100 105 110

gcc cgt caa gtc gcc cgc ttt gcc ggc gca cat act att gtt agt gga 384
 Ala Arg Gln Val Ala Arg Phe Ala Gly Ala His Thr Ile Val Ser Gly
 115 120 125

tat ctt gct ttt ggc agc gac gaa tct tat aaa aac cat tgg gat acc 432
 Tyr Leu Ala Phe Gly Ser Asp Glu Ser Tyr Lys Asn His Trp Asp Thr
 130 135 140

cgc gat gtg tat gcc atc cag ctt ttc ggc aag aaa cgt tgg caa ctt 480
 Arg Asp Val Tyr Ala Ile Gln Leu Phe Gly Lys Lys Arg Trp Gln Leu
 145 150 155 160

act gcc cct gat ttc cct atg cca ttg tat atg caa cag act aaa gat 528
 Thr Ala Pro Asp Phe Pro Met Pro Leu Tyr Met Gln Gln Thr Lys Asp
 165 170 175

act gat att tcc att cct gaa cat atc gat atg gat att atc ctt gaa 576
 Thr Asp Ile Ser Ile Pro Glu His Ile Asp Met Asp Ile Ile Leu Glu
 180 185 190

gca ggt gat gtc ctc tac atc cca cgc ggt tgg tgg cac aga cct atc	624
Ala Gly Asp Val Leu Tyr Ile Pro Arg Gly Trp Trp His Arg Pro Ile	
195 200 205	
ccg ctc ggc tgt gaa acc ttc cac ttc gct gtc ggt acc ttc ccg ccc	672
Pro Leu Gly Cys Glu Thr Phe His Phe Ala Val Gly Thr Phe Pro Pro	
210 215 220	
aac ggc tat aat tac ctc gag tgg cta atg aag aaa ttc ccc acg ata	720
Asn Gly Tyr Asn Tyr Leu Glu Trp Leu Met Lys Lys Phe Pro Thr Ile	
225 230 235 240	
gaa agt ctg cgc cac agt ttc tca gac tgg gag caa gat agg acg cgt	768
Glu Ser Leu Arg His Ser Phe Ser Asp Trp Glu Gln Asp Arg Thr Arg	
245 250 255	
atc aac gat act gcc gca caa att gct gcc atg att gcc gac ccc gtc	816
Ile Asn Asp Thr Ala Ala Gln Ile Ala Ala Met Ile Ala Asp Pro Val	
260 265 270	
aat tac gaa gcc ttc agt gaa gac ttc ctc ggc aaa gaa cgc acc gat	864
Asn Tyr Glu Ala Phe Ser Glu Asp Phe Leu Gly Lys Glu Arg Thr Asp	
275 280 285	
acc gct ttt cat ctc gaa cag ttc gcg aat ccc aac gct act ccg ctt	912
Thr Ala Phe His Leu Glu Gln Phe Ala Asn Pro Asn Ala Thr Pro Leu	
290 295 300	
tca gac gac gtc agg ttg aga cta aat gcc aat aat ttg gat acg ttg	960
Ser Asp Asp Val Arg Leu Arg Leu Asn Ala Asn Asn Leu Asp Thr Leu	
305 310 315 320	
gaa aag gga tat ttg att ggg aat ggg atg aag ata agc gta gat gaa	1008
Glu Lys Gly Tyr Leu Ile Gly Asn Gly Met Lys Ile Ser Val Asp Glu	
325 330 335	
ttg ggg aaa aaa gtg tta gaa cac atc ggt aag aat gaa ccg tta ttg	1056
Leu Gly Lys Lys Val Leu Glu His Ile Gly Lys Asn Glu Pro Leu Leu	
340 345 350	
ttg aaa aat cta ctg gtt aac ttc aat cag gga aaa cat gaa gaa gtt	1104
Leu Lys Asn Leu Leu Val Asn Phe Asn Gln Gly Lys His Glu Glu Val	
355 360 365	
agg aag ttg att tat cag ttg ata gag tta gat ttt ctg gaa ctt ttg	1152
Arg Lys Leu Ile Tyr Gln Leu Ile Glu Leu Asp Phe Leu Glu Leu Leu	
370 375 380	
tga	1155

<210> 14

<211> 384

<212> PRT

<213> Neisseria meningitidis

<400> 14

Met	Gly	Ile	His	Leu	Asp	Phe	Gly	Ile	Ser	Pro	Lys	Thr	Phe	Arg	Gln	
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Thr	Tyr	Leu	Tyr	Gln	Lys	Pro	Lys	Leu	Phe	Lys	Gly	Ala	Val	Arg	Asn	
		20						25					30			
Leu	Glu	Ala	Ala	Ser	Cys	Lys	Tyr	Ile	Asn	Glu	Ile	Tyr	Gln	Arg	Ala	
		35					40					45				
Asp	Pro	Thr	Ala	Pro	Leu	Phe	His	Leu	Arg	Lys	Lys	Gly	Ala	Ile	Val	
	50					55					60					
Pro	Lys	Glu	Glu	Tyr	Val	Glu	Ser	Phe	Asp	Asp	Leu	Gly	Lys	Thr	Arg	
65				70					75						80	
Tyr	Arg	Phe	Ile	Lys	Ser	Val	Ile	Tyr	Glu	His	Met	Lys	Asn	Gly	Ala	
			85					90						95		
Ser	Leu	Val	Tyr	Asn	His	Ile	Asn	Asn	Glu	Pro	Phe	Ser	Asp	His	Ile	
		100					105						110			
Ala	Arg	Gln	Val	Ala	Arg	Phe	Ala	Gly	Ala	His	Thr	Ile	Val	Ser	Gly	
		115					120					125				
Tyr	Leu	Ala	Phe	Gly	Ser	Asp	Glu	Ser	Tyr	Lys	Asn	His	Trp	Asp	Thr	
	130					135					140					
Arg	Asp	Val	Tyr	Ala	Ile	Gln	Leu	Phe	Gly	Lys	Lys	Arg	Trp	Gln	Leu	
145					150					155					160	
Thr	Ala	Pro	Asp	Phe	Pro	Met	Pro	Leu	Tyr	Met	Gln	Gln	Thr	Lys	Asp	
			165						170					175		
Thr	Asp	Ile	Ser	Ile	Pro	Glu	His	Ile	Asp	Met	Asp	Ile	Ile	Leu	Glu	
		180						185					190			
Ala	Gly	Asp	Val	Leu	Tyr	Ile	Pro	Arg	Gly	Trp	Trp	His	Arg	Pro	Ile	
		195					200					205				
Pro	Leu	Gly	Cys	Glu	Thr	Phe	His	Phe	Ala	Val	Gly	Thr	Phe	Pro	Pro	
	210					215					220					
Asn	Gly	Tyr	Asn	Tyr	Leu	Glu	Trp	Leu	Met	Lys	Lys	Phe	Pro	Thr	Ile	
225					230					235					240	
Glu	Ser	Leu	Arg	His	Ser	Phe	Ser	Asp	Trp	Glu	Gln	Asp	Arg	Thr	Arg	
			245						250					255		
Ile	Asn	Asp	Thr	Ala	Ala	Gln	Ile	Ala	Ala	Met	Ile	Ala	Asp	Pro	Val	
		260						265					270			
Asn	Tyr	Glu	Ala	Phe	Ser	Glu	Asp	Phe	Leu	Gly	Lys	Glu	Arg	Thr	Asp	
		275					280					285				
Thr	Ala	Phe	His	Leu	Glu	Gln	Phe	Ala	Asn	Pro	Asn	Ala	Thr	Pro	Leu	
	290					295					300					

Ser Asp Asp Val Arg Leu Arg Leu Asn Ala Asn Asn Leu Asp Thr Leu
 305 310 315 320
 Glu Lys Gly Tyr Leu Ile Gly Asn Gly Met Lys Ile Ser Val Asp Glu
 325 330 335
 Leu Gly Lys Lys Val Leu Glu His Ile Gly Lys Asn Glu Pro Leu Leu
 340 345 350
 Leu Lys Asn Leu Leu Val Asn Phe Asn Gln Gly Lys His Glu Glu Val
 355 360 365
 Arg Lys Leu Ile Tyr Gln Leu Ile Glu Leu Asp Phe Leu Glu Leu Leu
 370 375 380

<210> 15
 <211> 717
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> CDS
 <222> (1)..(714)

<400> 15
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 Met Asn Arg Pro Lys Gln Pro Phe Phe Arg Pro Glu Val Ala Val Ala
 1 5 10 15
 cgc caa acc agc ctg acg ggt aaa gtg att ctg aca cga ccg ttg tca 96
 Arg Gln Thr Ser Leu Thr Gly Lys Val Ile Leu Thr Arg Pro Leu Ser
 20 25 30
 ttt tcc cta tgg acg aca ttt gca tcg ata tct gcg tta ttg att atc 144
 Phe Ser Leu Trp Thr Thr Phe Ala Ser Ile Ser Ala Leu Leu Ile Ile
 35 40 45
 ctg ttt ttg ata ttt ggt aac tat acg cga aag aca aca gtg gag gga 192
 Leu Phe Leu Ile Phe Gly Asn Tyr Thr Arg Lys Thr Thr Val Glu Gly
 50 55 60
 caa att tta cct gca tcg ggc gta atc agg gtg tat gca ccg gat acg 240
 Gln Ile Leu Pro Ala Ser Gly Val Ile Arg Val Tyr Ala Pro Asp Thr
 65 70 75 80
 ggg aca att aca gcg aaa ttc gtg gaa gat gga gaa aag gtt aag gct 288
 Gly Thr Ile Thr Ala Lys Phe Val Glu Asp Gly Glu Lys Val Lys Ala
 85 90 95
 ggc gac aag cta ttt gcg ctt tcg acc tca cgt ttc ggc gca gga gat 336
 Gly Asp Lys Leu Phe Ala Leu Ser Thr Ser Arg Phe Gly Ala Gly Asp
 100 105 110
 agc gtg cag cag cag ttg aaa acg gag gca gtt ttg aag aaa acg ttg 384

Ser	Val	Gln	Gln	Gln	Leu	Lys	Thr	Glu	Ala	Val	Leu	Lys	Lys	Thr	Leu	
		115					120					125				
gca	gaa	cag	gaa	ctg	ggt	cgt	ctg	aag	ctg	ata	cac	ggg	aat	gaa	acg	432
Ala	Glu	Gln	Glu	Leu	Gly	Arg	Leu	Lys	Leu	Ile	His	Gly	Asn	Glu	Thr	
		130				135					140					
cgc	agc	ctt	aaa	gca	act	gtc	gaa	cgt	ttg	gaa	aac	cag	aaa	ctc	cat	480
Arg	Ser	Leu	Lys	Ala	Thr	Val	Glu	Arg	Leu	Glu	Asn	Gln	Lys	Leu	His	
					145	150				155				160		
att	tcg	caa	cag	ata	gac	ggt	cag	aaa	agg	cgc	att	aga	ctt	gcg	gaa	528
Ile	Ser	Gln	Gln	Ile	Asp	Gly	Gln	Lys	Arg	Arg	Ile	Arg	Leu	Ala	Glu	
				165					170					175		
gaa	atg	ttg	cag	aaa	tat	cgt	ttc	cta	tcc	gcc	aat	gat	gca	gtg	cca	576
Glu	Met	Leu	Gln	Lys	Tyr	Arg	Phe	Leu	Ser	Ala	Asn	Asp	Ala	Val	Pro	
			180					185					190			
aaa	caa	gaa	atg	atg	aat	gtc	aag	gca	gag	ctt	tta	gag	cag	aaa	gcc	624
Lys	Gln	Glu	Met	Met	Asn	Val	Lys	Ala	Glu	Leu	Leu	Glu	Gln	Lys	Ala	
		195					200					205				
aaa	ctt	gat	gcc	tac	cgc	cga	gaa	gaa	gtc	ggg	ctg	ctt	cag	gaa	atc	672
Lys	Leu	Asp	Ala	Tyr	Arg	Arg	Glu	Glu	Val	Gly	Leu	Leu	Gln	Glu	Ile	
		210				215				220						
cgc	acg	cag	aat	ctg	aca	ttg	gcc	agc	ctc	ccc	caa	gcg	gca	tga		717
Arg	Thr	Gln	Asn	Leu	Thr	Leu	Ala	Ser	Leu	Pro	Gln	Ala	Ala			
		225			230				235							

<210> 16
 <211> 238
 <212> PRT
 <213> Neisseria meningitidis

<400> 16
 Met Asn Arg Pro Lys Gln Pro Phe Phe Arg Pro Glu Val Ala Val Ala
 1 5 10 15
 Arg Gln Thr Ser Leu Thr Gly Lys Val Ile Leu Thr Arg Pro Leu Ser
 20 25 30
 Phe Ser Leu Trp Thr Thr Phe Ala Ser Ile Ser Ala Leu Leu Ile Ile
 35 40 45
 Leu Phe Leu Ile Phe Gly Asn Tyr Thr Arg Lys Thr Thr Val Glu Gly
 50 55 60
 Gln Ile Leu Pro Ala Ser Gly Val Ile Arg Val Tyr Ala Pro Asp Thr
 65 70 75 80
 Gly Thr Ile Thr Ala Lys Phe Val Glu Asp Gly Glu Lys Val Lys Ala
 85 90 95
 Gly Asp Lys Leu Phe Ala Leu Ser Thr Ser Arg Phe Gly Ala Gly Asp

100	105	110
Ser Val Gln Gln Gln Leu Lys Thr Glu Ala Val Leu Lys Lys Thr Leu		
115	120	125
Ala Glu Gln Glu Leu Gly Arg Leu Lys Leu Ile His Gly Asn Glu Thr		
130	135	140
Arg Ser Leu Lys Ala Thr Val Glu Arg Leu Glu Asn Gln Lys Leu His		
145	150	155
Ile Ser Gln Gln Ile Asp Gly Gln Lys Arg Arg Ile Arg Leu Ala Glu		
165	170	175
Glu Met Leu Gln Lys Tyr Arg Phe Leu Ser Ala Asn Asp Ala Val Pro		
180	185	190
Lys Gln Glu Met Met Asn Val Lys Ala Glu Leu Leu Glu Gln Lys Ala		
195	200	205
Lys Leu Asp Ala Tyr Arg Arg Glu Glu Val Gly Leu Leu Gln Glu Ile		
210	215	220
Arg Thr Gln Asn Leu Thr Leu Ala Ser Leu Pro Gln Ala Ala		
225	230	235

<210> 17
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 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (1)..(687)

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1 5 10 15	
gcc tac ggc cga gaa gaa gcc ggg ctg ctt cag gaa atc cgc acg cag	96
Ala Tyr Gly Arg Glu Glu Ala Gly Leu Leu Gln Glu Ile Arg Thr Gln	
20 25 30	
aat ctg aca ttg gcc agc ctc ccc aaa cgg cat gag aca gaa caa agc	144
Asn Leu Thr Leu Ala Ser Leu Pro Lys Arg His Glu Thr Glu Gln Ser	
35 40 45	
cag ctt gaa cgc acc atg gcc gat att tct caa gaa gtt ttg gat ttt	192
Gln Leu Glu Arg Thr Met Ala Asp Ile Ser Gln Glu Val Leu Asp Phe	
50 55 60	
gaa atg cgc tct gaa caa atc atc cgt gca gga cgg tcg ggt tat ata	240
Glu Met Arg Ser Glu Gln Ile Ile Arg Ala Gly Arg Ser Gly Tyr Ile	
65 70 75 80	

gca	ata	ccg	aac	gtc	gaa	gtc	gga	cag	cag	gtt	gat	cct	tcc	aaa	ctg	288
Ala	Ile	Pro	Asn	Val	Glu	Val	Gly	Gln	Gln	Val	Asp	Pro	Ser	Lys	Leu	
			85					90						95		

ctc	ttg	agc	att	gtt	ccc	gaa	cgt	acc	gag	cta	tat	gcc	cat	cta	tat	336
Leu	Leu	Ser	Ile	Val	Pro	Glu	Arg	Thr	Glu	Leu	Tyr	Ala	His	Leu	Tyr	
			100					105					110			

atc	ccc	agc	agt	gca	gca	ggc	ttt	atc	aag	ccg	aaa	gac	aag	gtt	gtc	384
Ile	Pro	Ser	Ser	Ala	Ala	Gly	Phe	Ile	Lys	Pro	Lys	Asp	Lys	Val	Val	
			115				120					125				

cta	cgt	tat	cag	gca	tat	ccc	tat	caa	aaa	ttc	ggg	ctt	gct	tcc	ggc	432
Leu	Arg	Tyr	Gln	Ala	Tyr	Pro	Tyr	Gln	Lys	Phe	Gly	Leu	Ala	Ser	Gly	
	130					135					140					

agt	gtc	gta	tca	gta	gca	aaa	acg	gca	ctg	ggc	aga	cag	gaa	ttg	tcg	480
Ser	Val	Val	Ser	Val	Ala	Lys	Thr	Ala	Leu	Gly	Arg	Gln	Glu	Leu	Ser	
	145				150				155						160	

gga	ttg	ggc	atg	gta	tcc	tcc	gat	ttg	gcg	aag	agc	aac	gaa	cct	gtt	528
Gly	Leu	Gly	Met	Val	Ser	Ser	Asp	Leu	Ala	Lys	Ser	Asn	Glu	Pro	Val	
			165					170						175		

tat	ctc	gtg	aaa	ata	aaa	ccc	gac	aaa	cca	acc	atc	act	gca	tac	ggc	576
Tyr	Leu	Val	Lys	Ile	Lys	Pro	Asp	Lys	Pro	Thr	Ile	Thr	Ala	Tyr	Gly	
			180					185					190			

gag	gaa	aaa	ccg	ctg	caa	atc	ggc	atg	acg	ttg	gaa	gca	gac	atc	ctg	624
Glu	Glu	Lys	Pro	Leu	Gln	Ile	Gly	Met	Thr	Leu	Glu	Ala	Asp	Ile	Leu	
		195					200					205				

cac	gag	aaa	cgg	cgg	ctg	tac	gaa	tgg	gta	ttg	gag	ctg	att	tat	agt	672
His	Glu	Lys	Arg	Arg	Leu	Tyr	Glu	Trp	Val	Leu	Glu	Leu	Ile	Tyr	Ser	
	210					215					220					

atg	tcg	ggc	aaa	ctg	taa											690
Met	Ser	Gly	Lys	Leu												
225																

<210> 18
 <211> 229
 <212> PRT
 <213> Neisseria meningitidis

<400> 18																
Met	Met	Asn	Val	Glu	Ala	Glu	Leu	Leu	Glu	Gln	Lys	Ala	Lys	Leu	Asp	
1				5					10					15		

Ala	Tyr	Gly	Arg	Glu	Glu	Ala	Gly	Leu	Leu	Gln	Glu	Ile	Arg	Thr	Gln	
			20					25					30			

Asn	Leu	Thr	Leu	Ala	Ser	Leu	Pro	Lys	Arg	His	Glu	Thr	Glu	Gln	Ser	
		35					40					45				

Gln Leu Glu Arg Thr Met Ala Asp Ile Ser Gln Glu Val Leu Asp Phe
 50 55 60
 Glu Met Arg Ser Glu Gln Ile Ile Arg Ala Gly Arg Ser Gly Tyr Ile
 65 70 75 80
 Ala Ile Pro Asn Val Glu Val Gly Gln Gln Val Asp Pro Ser Lys Leu
 85 90 95
 Leu Leu Ser Ile Val Pro Glu Arg Thr Glu Leu Tyr Ala His Leu Tyr
 100 105 110
 Ile Pro Ser Ser Ala Ala Gly Phe Ile Lys Pro Lys Asp Lys Val Val
 115 120 125
 Leu Arg Tyr Gln Ala Tyr Pro Tyr Gln Lys Phe Gly Leu Ala Ser Gly
 130 135 140
 Ser Val Val Ser Val Ala Lys Thr Ala Leu Gly Arg Gln Glu Leu Ser
 145 150 155 160
 Gly Leu Gly Met Val Ser Ser Asp Leu Ala Lys Ser Asn Glu Pro Val
 165 170 175
 Tyr Leu Val Lys Ile Lys Pro Asp Lys Pro Thr Ile Thr Ala Tyr Gly
 180 185 190
 Glu Glu Lys Pro Leu Gln Ile Gly Met Thr Leu Glu Ala Asp Ile Leu
 195 200 205
 His Glu Lys Arg Arg Leu Tyr Glu Trp Val Leu Glu Leu Ile Tyr Ser
 210 215 220
 Met Ser Gly Lys Leu
 225

<210> 19
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 <212> DNA
 <213> Neisseria meningitidis

<220>
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 Met Lys Phe Phe Pro Ala Pro Cys Leu Leu Val Ile Leu Ala Val Ile
 1 5 10 15
 ccc ctt aaa acc tta gct gcc gat gaa aac gat gca gaa ctt atc cgt 96
 Pro Leu Lys Thr Leu Ala Ala Asp Glu Asn Asp Ala Glu Leu Ile Arg
 20 25 30
 tcc atg cag cgt cag cag cac ata gat gct gaa ttg tta act gat gca 144

Ser	Met	Gln	Arg	Gln	Gln	His	Ile	Asp	Ala	Glu	Leu	Leu	Thr	Asp	Ala		
		35					40					45					
aat	gtc	cgt	ttc	gag	caa	cca	ttg	gag	aag	aac	aat	tat	gtc	ctg	agt	192	
Asn	Val	Arg	Phe	Glu	Gln	Pro	Leu	Glu	Lys	Asn	Asn	Tyr	Val	Leu	Ser		
	50					55					60						
gaa	gat	gaa	aca	ccg	tgt	act	cgg	gta	aat	tac	att	agt	tta	gat	gat	240	
Glu	Asp	Glu	Thr	Pro	Cys	Thr	Arg	Val	Asn	Tyr	Ile	Ser	Leu	Asp	Asp		
	65				70					75					80		
aag	acg	gcg	cgc	aaa	ttt	tct	ttt	ctt	cct	tct	gtg	ctc	atg	aaa	gaa	288	
Lys	Thr	Ala	Arg	Lys	Phe	Ser	Phe	Leu	Pro	Ser	Val	Leu	Met	Lys	Glu		
				85					90					95			
aca	gct	ttt	aaa	act	ggg	atg	tgt	tta	ggg	tcc	aat	aat	ttg	agc	agg	336	
Thr	Ala	Phe	Lys	Thr	Gly	Met	Cys	Leu	Gly	Ser	Asn	Asn	Leu	Ser	Arg		
			100					105					110				
cta	caa	aaa	gcc	gcg	caa	cag	ata	ctg	att	gtg	cgt	ggc	tac	ctc	act	384	
Leu	Gln	Lys	Ala	Ala	Gln	Gln	Ile	Leu	Ile	Val	Arg	Gly	Tyr	Leu	Thr		
		115					120					125					
tcc	caa	gct	att	atc	caa	cca	cag	aat	atg	gat	tcg	gga	att	ctg	aaa	432	
Ser	Gln	Ala	Ile	Ile	Gln	Pro	Gln	Asn	Met	Asp	Ser	Gly	Ile	Leu	Lys		
	130					135					140						
tta	cgg	gta	tca	gca	ggc	gaa	atc	agg	gat	atc	cgc	tat	gaa	gaa	aaa	480	
Leu	Arg	Val	Ser	Ala	Gly	Glu	Ile	Arg	Asp	Ile	Arg	Tyr	Glu	Glu	Lys		
	145				150					155					160		
cgg	gat	gcg	aag	tct	gcc	gag	ggc	agt	att	agt	gca	ttc	aat	aac	aaa	528	
Arg	Asp	Ala	Lys	Ser	Ala	Glu	Gly	Ser	Ile	Ser	Ala	Phe	Asn	Asn	Lys		
				165					170					175			
ctt	ccc	tta	tat	agg	aac	aaa	att	ctc	aat	ctt	cgc	gat	gta	gag	cag	576	
Leu	Pro	Leu	Tyr	Arg	Asn	Lys	Ile	Leu	Asn	Leu	Arg	Asp	Val	Glu	Gln		
			180					185					190				
ggc	ttg	gaa	aac	ctg	cgt	cgt	ttg	ccg	agt	ggt	aaa	aca	gat	att	cag	624	
Gly	Leu	Glu	Asn	Leu	Arg	Arg	Leu	Pro	Ser	Val	Lys	Thr	Asp	Ile	Gln		
		195					200					205					
att	ata	ccg	tcc	gaa	gaa	gaa	ggc	aaa	agc	gat	tta	cag	atc	aaa	tgg	672	
Ile	Ile	Pro	Ser	Glu	Glu	Glu	Gly	Lys	Ser	Asp	Leu	Gln	Ile	Lys	Trp		
	210					215					220						
cag	cag	aat	aaa	ccc	ata	cgg	ttc	agt	atc	ggg	ata	gat	gat	gcg	ggc	720	
Gln	Gln	Asn	Lys	Pro	Ile	Arg	Phe	Ser	Ile	Gly	Ile	Asp	Asp	Ala	Gly		
	225				230					235					240		
ggc	aaa	acg	acc	ggc	aaa	tat	caa	gga	aat	gtc	gct	tta	tcg	tcc	gat	768	
Gly	Lys	Thr	Thr	Gly	Lys	Tyr	Gln	Gly	Asn	Val	Ala	Leu	Ser	Ser	Asp		
				245				250						255			
aac	cct	ttg	ggc	tta	agc	gat	tcg	ttt	tat	ggt	tca	tat	gga	cgc	ggg	816	
Asn	Pro	Leu	Gly	Leu	Ser	Asp	Ser	Phe	Tyr	Val	Ser	Tyr	Gly	Arg	Gly		

260					265					270						
ttg	gtg	cac	aaa	acg	gac	ttg	act	gct	gcc	acc	ggg	acg	gaa	act	gaa	864
Leu	Val	His	Lys	Thr	Asp	Leu	Thr	Ala	Ala	Thr	Gly	Thr	Glu	Thr	Glu	
275					280					285						
agc	gga	tcc	aga	agt	tac	agc	gtg	cat	tat	tcg	gtg	ccc	gta	aaa	aaa	912
Ser	Gly	Ser	Arg	Ser	Tyr	Ser	Val	His	Tyr	Ser	Val	Pro	Val	Lys	Lys	
290					295					300						
tgg	ctg	ttt	tct	ttt	aat	cac	aat	gga	cat	cgt	tac	cac	gaa	gca	acc	960
Trp	Leu	Phe	Ser	Phe	Asn	His	Asn	Gly	His	Arg	Tyr	His	Glu	Ala	Thr	
305					310					315					320	
gaa	ggc	tat	tcc	gtc	aat	tac	gat	tac	aac	ggc	aaa	caa	tat	cag	agc	1008
Glu	Gly	Tyr	Ser	Val	Asn	Tyr	Asp	Tyr	Asn	Gly	Lys	Gln	Tyr	Gln	Ser	
325					330					335						
agc	ctg	gcc	gcc	gag	cgc	atg	ctt	tgg	ccc	ccc	agc	ttt	cct	caa	act	1056
Ser	Leu	Ala	Ala	Glu	Arg	Met	Leu	Trp	Pro	Pro	Ser	Phe	Pro	Gln	Thr	
340					345					350						
tca	gtc	cga	atg	aaa	tta	tgg	aca	cgc	caa	acc	tat	aaa	tac	atc	gac	1104
Ser	Val	Arg	Met	Lys	Leu	Trp	Thr	Arg	Gln	Thr	Tyr	Lys	Tyr	Ile	Asp	
355					360					365						
gat	gcc	gaa	atc	gaa	gtg	caa	cgc	cgc	cgc	tct	gca	ggc	tgg	gaa	gcc	1152
Asp	Ala	Glu	Ile	Glu	Val	Gln	Arg	Arg	Arg	Ser	Ala	Gly	Trp	Glu	Ala	
370					375					380						
gaa	ttg	cgc	cac	cgt	gct	tac	ctc	cac	cgt	tgg	cag	ctt	gac	ggc	aag	1200
Glu	Leu	Arg	His	Arg	Ala	Tyr	Leu	His	Arg	Trp	Gln	Leu	Asp	Gly	Lys	
385					390					395					400	
ttg	tct	tac	aaa	cgc	ggg	acc	ggc	atg	cgc	caa	agt	atg	ccc	gca	cct	1248
Leu	Ser	Tyr	Lys	Arg	Gly	Thr	Gly	Met	Arg	Gln	Ser	Met	Pro	Ala	Pro	
405					410					415						
gaa	gaa	aac	ggc	ggc	ggg	act	att	cca	gcc	aca	tcc	cgt	atg	aaa	atc	1296
Glu	Glu	Asn	Gly	Gly	Gly	Thr	Ile	Pro	Ala	Thr	Ser	Arg	Met	Lys	Ile	
420					425					430						
ata	acc	gcc	gga	ttg	gat	gca	gcg	gcc	ccg	tct	atg	ttg	ggc	aaa	cag	1344
Ile	Thr	Ala	Gly	Leu	Asp	Ala	Ala	Ala	Pro	Ser	Met	Leu	Gly	Lys	Gln	
435					440					445						
cag	ttt	ttc	tac	gca	acc	gcc	att	caa	gct	caa	tgg	aac	aaa	acg	cct	1392
Gln	Phe	Phe	Tyr	Ala	Thr	Ala	Ile	Gln	Ala	Gln	Trp	Asn	Lys	Thr	Pro	
450					455					460						
ttg	gtt	gcc	caa	gac	aag	ttg	tct	atc	ggc	agc	cgc	tac	acc	gtt	cgc	1440
Leu	Val	Ala	Gln	Asp	Lys	Leu	Ser	Ile	Gly	Ser	Arg	Tyr	Thr	Val	Arg	
465					470					475					480	
gga	ttt	gat	ggg	gag	cag	agt	ctt	ttc	gga	gag	cga	ggg	ttc	tac	tgg	1488
Gly	Phe	Asp	Gly	Glu	Gln	Ser	Leu	Phe	Gly	Glu	Arg	Gly	Phe	Tyr	Trp	
485					490					495						

cag	aat	act	tta	act	tg	tat	ttt	cat	ccg	aac	cat	cag	ttc	tat	ctc	1536
Gln	Asn	Thr	Leu	Thr	Trp	Tyr	Phe	His	Pro	Asn	His	Gln	Phe	Tyr	Leu	
			500					505					510			

ggt	gcg	gac	tat	ggc	cgc	gta	tct	ggc	gaa	agt	gca	caa	tat	gta	tcg	1584
Gly	Ala	Asp	Tyr	Gly	Arg	Val	Ser	Gly	Glu	Ser	Ala	Gln	Tyr	Val	Ser	
		515					520					525				

ggc	aag	cag	ctg	atg	ggt	gca	gtg	gtc	ggc	ttc	aga	gga	ggg	cat	aaa	1632
Gly	Lys	Gln	Leu	Met	Gly	Ala	Val	Val	Gly	Phe	Arg	Gly	Gly	His	Lys	
	530					535					540					

gta	ggc	ggt	atg	ttt	gct	tat	gat	ctg	ttt	gcc	ggc	aag	ccg	ctt	cat	1680
Val	Gly	Gly	Met	Phe	Ala	Tyr	Asp	Leu	Phe	Ala	Gly	Lys	Pro	Leu	His	
545					550					555					560	

aaa	ccc	aaa	ggc	ttt	cag	acg	acc	aac	acc	gtt	tac	ggc	ttc	aac	ttg	1728
Lys	Pro	Lys	Gly	Phe	Gln	Thr	Thr	Asn	Thr	Val	Tyr	Gly	Phe	Asn	Leu	
			565						570					575		

aat	tac	agt	ttc	taa												1743
Asn	Tyr	Ser	Phe													
			580													

<210> 20

<211> 580

<212> PRT

<213> Neisseria meningitidis

<400> 20

Met	Lys	Phe	Phe	Pro	Ala	Pro	Cys	Leu	Leu	Val	Ile	Leu	Ala	Val	Ile	
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Pro	Leu	Lys	Thr	Leu	Ala	Ala	Asp	Glu	Asn	Asp	Ala	Glu	Leu	Ile	Arg	
			20					25					30			

Ser	Met	Gln	Arg	Gln	Gln	His	Ile	Asp	Ala	Glu	Leu	Leu	Thr	Asp	Ala	
		35					40					45				

Asn	Val	Arg	Phe	Glu	Gln	Pro	Leu	Glu	Lys	Asn	Asn	Tyr	Val	Leu	Ser	
	50					55					60					

Glu	Asp	Glu	Thr	Pro	Cys	Thr	Arg	Val	Asn	Tyr	Ile	Ser	Leu	Asp	Asp	
65					70					75				80		

Lys	Thr	Ala	Arg	Lys	Phe	Ser	Phe	Leu	Pro	Ser	Val	Leu	Met	Lys	Glu	
				85					90					95		

Thr	Ala	Phe	Lys	Thr	Gly	Met	Cys	Leu	Gly	Ser	Asn	Asn	Leu	Ser	Arg	
			100						105				110			

Leu	Gln	Lys	Ala	Ala	Gln	Gln	Ile	Leu	Ile	Val	Arg	Gly	Tyr	Leu	Thr	
		115					120					125				

Ser	Gln	Ala	Ile	Ile	Gln	Pro	Gln	Asn	Met	Asp	Ser	Gly	Ile	Leu	Lys	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	--

130	135	140
Leu Arg Val Ser Ala Gly Glu Ile Arg Asp Ile Arg Tyr Glu Glu Lys 145 150 155 160		
Arg Asp Ala Lys Ser Ala Glu Gly Ser Ile Ser Ala Phe Asn Asn Lys 165 170 175		
Leu Pro Leu Tyr Arg Asn Lys Ile Leu Asn Leu Arg Asp Val Glu Gln 180 185 190		
Gly Leu Glu Asn Leu Arg Arg Leu Pro Ser Val Lys Thr Asp Ile Gln 195 200 205		
Ile Ile Pro Ser Glu Glu Glu Gly Lys Ser Asp Leu Gln Ile Lys Trp 210 215 220		
Gln Gln Asn Lys Pro Ile Arg Phe Ser Ile Gly Ile Asp Asp Ala Gly 225 230 235 240		
Gly Lys Thr Thr Gly Lys Tyr Gln Gly Asn Val Ala Leu Ser Ser Asp 245 250 255		
Asn Pro Leu Gly Leu Ser Asp Ser Phe Tyr Val Ser Tyr Gly Arg Gly 260 265 270		
Leu Val His Lys Thr Asp Leu Thr Ala Ala Thr Gly Thr Glu Thr Glu 275 280 285		
Ser Gly Ser Arg Ser Tyr Ser Val His Tyr Ser Val Pro Val Lys Lys 290 295 300		
Trp Leu Phe Ser Phe Asn His Asn Gly His Arg Tyr His Glu Ala Thr 305 310 315 320		
Glu Gly Tyr Ser Val Asn Tyr Asp Tyr Asn Gly Lys Gln Tyr Gln Ser 325 330 335		
Ser Leu Ala Ala Glu Arg Met Leu Trp Pro Pro Ser Phe Pro Gln Thr 340 345 350		
Ser Val Arg Met Lys Leu Trp Thr Arg Gln Thr Tyr Lys Tyr Ile Asp 355 360 365		
Asp Ala Glu Ile Glu Val Gln Arg Arg Arg Ser Ala Gly Trp Glu Ala 370 375 380		
Glu Leu Arg His Arg Ala Tyr Leu His Arg Trp Gln Leu Asp Gly Lys 385 390 395 400		
Leu Ser Tyr Lys Arg Gly Thr Gly Met Arg Gln Ser Met Pro Ala Pro 405 410 415		
Glu Glu Asn Gly Gly Gly Thr Ile Pro Ala Thr Ser Arg Met Lys Ile 420 425 430		
Ile Thr Ala Gly Leu Asp Ala Ala Ala Pro Ser Met Leu Gly Lys Gln		

435	440	445
Gln Phe Phe Tyr Ala Thr Ala Ile Gln Ala Gln Trp Asn Lys Thr Pro 450 455 460		
Leu Val Ala Gln Asp Lys Leu Ser Ile Gly Ser Arg Tyr Thr Val Arg 465 470 475 480		
Gly Phe Asp Gly Glu Gln Ser Leu Phe Gly Glu Arg Gly Phe Tyr Trp 485 490 495		
Gln Asn Thr Leu Thr Trp Tyr Phe His Pro Asn His Gln Phe Tyr Leu 500 505 510		
Gly Ala Asp Tyr Gly Arg Val Ser Gly Glu Ser Ala Gln Tyr Val Ser 515 520 525		
Gly Lys Gln Leu Met Gly Ala Val Val Gly Phe Arg Gly Gly His Lys 530 535 540		
Val Gly Gly Met Phe Ala Tyr Asp Leu Phe Ala Gly Lys Pro Leu His 545 550 555 560		
Lys Pro Lys Gly Phe Gln Thr Thr Asn Thr Val Tyr Gly Phe Asn Leu 565 570 575		
Asn Tyr Ser Phe 580		

<210> 21
 <211> 411
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> CDS
 <222> (1)..(408)

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ctt ttg ctt gtg tgg acg tgc ggt tac cga tac gcc gcc gac aag gcc Leu Leu Leu Val Trp Thr Cys Gly Tyr Arg Tyr Ala Ala Asp Lys Ala 20 25 30	96
gaa gcg aaa caa acc gcc ctg att gcc acc tat cgg cat tct tct atg Glu Ala Lys Gln Thr Ala Leu Ile Ala Thr Tyr Arg His Ser Ser Met 35 40 45	144
gtt gcg gcg gaa caa tac gcc ttg cag ctt aaa aaa gcg cag gac gaa Val Ala Ala Glu Gln Tyr Ala Leu Gln Leu Lys Lys Ala Gln Asp Glu 50 55 60	192

agg	cag	cgg	tgg	tac	gac	ttt	tcc	caa	aaa	caa	gga	aga	aag	ccc	gtg	240
Arg	Gln	Arg	Trp	Tyr	Asp	Phe	Ser	Gln	Lys	Gln	Gly	Arg	Lys	Pro	Val	
65					70					75					80	

aaa	aaa	cag	tat	ccg	ccg	caa	acg	aaa	aaa	gcc	ggc	tat	ctg	aaa	acc	288
Lys	Lys	Gln	Tyr	Pro	Pro	Gln	Thr	Lys	Lys	Ala	Gly	Tyr	Leu	Lys	Thr	
			85						90					95		

aag	gaa	gaa	ctg	ctt	gcg	gaa	ttg	gct	tgc	ctt	aaa	gcg	gaa	atg	gct	336
Lys	Glu	Glu	Leu	Leu	Ala	Glu	Leu	Ala	Cys	Leu	Lys	Ala	Glu	Met	Ala	
			100					105					110			

gcc	cta	aaa	aag	ctc	gat	gcc	tta	atc	tat	ggg	aaa	gaa	gtg	cgg	cag	384
Ala	Leu	Lys	Lys	Leu	Asp	Ala	Leu	Ile	Tyr	Gly	Lys	Glu	Val	Arg	Gln	
		115					120					125				

aaa	gaa	cgc	aac	tcg	tcg	cag	ggg	taa								411
Lys	Glu	Arg	Asn	Ser	Ser	Gln	Gly									
	130					135										

<210> 22
 <211> 136
 <212> PRT
 <213> Neisseria meningitidis

<400> 22																
Met	Ile	Glu	Phe	Val	Arg	Ala	Lys	Lys	Arg	Leu	Leu	Trp	Ala	Phe	Val	
1				5					10					15		
Leu	Leu	Leu	Val	Trp	Thr	Cys	Gly	Tyr	Arg	Tyr	Ala	Ala	Asp	Lys	Ala	
			20					25					30			
Glu	Ala	Lys	Gln	Thr	Ala	Leu	Ile	Ala	Thr	Tyr	Arg	His	Ser	Ser	Met	
		35					40					45				
Val	Ala	Ala	Glu	Gln	Tyr	Ala	Leu	Gln	Leu	Lys	Lys	Ala	Gln	Asp	Glu	
	50					55					60					
Arg	Gln	Arg	Trp	Tyr	Asp	Phe	Ser	Gln	Lys	Gln	Gly	Arg	Lys	Pro	Val	
65					70					75					80	
Lys	Lys	Gln	Tyr	Pro	Pro	Gln	Thr	Lys	Lys	Ala	Gly	Tyr	Leu	Lys	Thr	
				85					90					95		
Lys	Glu	Glu	Leu	Leu	Ala	Glu	Leu	Ala	Cys	Leu	Lys	Ala	Glu	Met	Ala	
			100					105					110			
Ala	Leu	Lys	Lys	Leu	Asp	Ala	Leu	Ile	Tyr	Gly	Lys	Glu	Val	Arg	Gln	
		115					120					125				
Lys	Glu	Arg	Asn	Ser	Ser	Gln	Gly									
	130					135										

<210> 23

<211> 924
<212> DNA
<213> Neisseria meningitidis

<220>
<221> CDS
<222> (1)..(921)

<400> 23

atg	caa	tac	agc	aca	ctg	gca	gga	caa	acc	gac	aac	tcc	ctc	gtt	tcc	48
Met	Gln	Tyr	Ser	Thr	Leu	Ala	Gly	Gln	Thr	Asp	Asn	Ser	Leu	Val	Ser	
1				5				10					15			
aat	aat	ttc	ggg	ttt	ttg	cgc	ctg	ccg	ctt	aat	ttt	atg	ccg	tat	gaa	96
Asn	Asn	Phe	Gly	Phe	Leu	Arg	Leu	Pro	Leu	Asn	Phe	Met	Pro	Tyr	Glu	
		20					25						30			
agt	cat	gcc	gat	tgg	gtt	att	acc	ggc	gtg	cct	tat	gat	atg	gcg	gtt	144
Ser	His	Ala	Asp	Trp	Val	Ile	Thr	Gly	Val	Pro	Tyr	Asp	Met	Ala	Val	
		35					40					45				
tca	ggg	cgt	tcc	ggc	gcg	cgt	ttc	ggg	cct	gaa	gcc	atc	cgg	cgc	gcc	192
Ser	Gly	Arg	Ser	Gly	Ala	Arg	Phe	Gly	Pro	Glu	Ala	Ile	Arg	Arg	Ala	
	50					55					60					
tcc	gtc	aac	ctc	gct	tgg	gag	cac	cgc	agg	ttt	cca	tgg	aca	ttt	gat	240
Ser	Val	Asn	Leu	Ala	Trp	Glu	His	Arg	Arg	Phe	Pro	Trp	Thr	Phe	Asp	
65				70					75						80	
gtg	cgc	gaa	cgc	ctg	aac	att	att	gat	tgc	ggc	gac	ttg	gtt	ttt	tct	288
Val	Arg	Glu	Arg	Leu	Asn	Ile	Ile	Asp	Cys	Gly	Asp	Leu	Val	Phe	Ser	
				85					90					95		
ttt	ggc	gac	agc	agg	gat	ttt	gtc	gaa	aaa	atg	gaa	gcg	cac	gcc	ggc	336
Phe	Gly	Asp	Ser	Arg	Asp	Phe	Val	Glu	Lys	Met	Glu	Ala	His	Ala	Gly	
			100					105					110			
aaa	tta	ctt	tct	tcc	ggc	aaa	cgc	tgt	ttg	agt	ttg	ggc	ggc	gac	cat	384
Lys	Leu	Leu	Ser	Ser	Gly	Lys	Arg	Cys	Leu	Ser	Leu	Gly	Gly	Asp	His	
		115					120					125				
ttc	att	acc	ctc	ccg	ttg	ttg	cgc	gcc	cac	gcc	cgc	tat	ttc	ggc	aaa	432
Phe	Ile	Thr	Leu	Pro	Leu	Leu	Arg	Ala	His	Ala	Arg	Tyr	Phe	Gly	Lys	
	130					135					140					
ctc	gca	ctg	att	cat	ttt	gac	gcg	cac	acc	gac	acc	tac	gac	aac	ggc	480
Leu	Ala	Leu	Ile	His	Phe	Asp	Ala	His	Thr	Asp	Thr	Tyr	Asp	Asn	Gly	
145					150					155					160	
agc	gaa	tac	gac	cac	ggg	acg	atg	ttc	tat	acc	gcc	ccc	aag	gaa	ggc	528
Ser	Glu	Tyr	Asp	His	Gly	Thr	Met	Phe	Tyr	Thr	Ala	Pro	Lys	Glu	Gly	
				165					170					175		
ctc	atc	gac	cgc	tcc	cgt	tcc	gta	caa	atc	ggc	ata	cgt	acc	gaa	cac	576
Leu	Ile	Asp	Pro	Ser	Arg	Ser	Val	Gln	Ile	Gly	Ile	Arg	Thr	Glu	His	
			180					185						190		

agt aaa aaa ttg cct ttt act gtg ttg acc gcc ccc caa gtt aat gaa	624
Ser Lys Lys Leu Pro Phe Thr Val Leu Thr Ala Pro Gln Val Asn Glu	
195 200 205	
gac agt gtt gaa gag acc gtc cgt aaa atc aaa gaa acc gtc ggc aat	672
Asp Ser Val Glu Glu Thr Val Arg Lys Ile Lys Glu Thr Val Gly Asn	
210 215 220	
atg ccc gtt tac ctg act ttc gac ata gac tgc ctc gac ccg tcg ttc	720
Met Pro Val Tyr Leu Thr Phe Asp Ile Asp Cys Leu Asp Pro Ser Phe	
225 230 235 240	
gcc ccc ggg acc ggt acg ccc gta tgc ggc ggc ttg agc agc gac agg	768
Ala Pro Gly Thr Gly Thr Pro Val Cys Gly Gly Leu Ser Ser Asp Arg	
245 250 255	
gca tta aaa atc cta cgt ggg ctg acg gat ctc gac atc gtc ggt atg	816
Ala Leu Lys Ile Leu Arg Gly Leu Thr Asp Leu Asp Ile Val Gly Met	
260 265 270	
gat gtt gta gaa gtt gcc ccc tct tac gac caa tcc gac att acc gct	864
Asp Val Val Glu Val Ala Pro Ser Tyr Asp Gln Ser Asp Ile Thr Ala	
275 280 285	
ttg gcc ggc gcc aca att gcc ttg gaa atg ctt tac ctt caa ggt gcg	912
Leu Ala Gly Ala Thr Ile Ala Leu Glu Met Leu Tyr Leu Gln Gly Ala	
290 295 300	
aaa aag gac tga	924
Lys Lys Asp	
305	

<210> 24
 <211> 307
 <212> PRT
 <213> Neisseria meningitidis

<400> 24	
Met Gln Tyr Ser Thr Leu Ala Gly Gln Thr Asp Asn Ser Leu Val Ser	
1 5 10 15	
Asn Asn Phe Gly Phe Leu Arg Leu Pro Leu Asn Phe Met Pro Tyr Glu	
20 25 30	
Ser His Ala Asp Trp Val Ile Thr Gly Val Pro Tyr Asp Met Ala Val	
35 40 45	
Ser Gly Arg Ser Gly Ala Arg Phe Gly Pro Glu Ala Ile Arg Arg Ala	
50 55 60	
Ser Val Asn Leu Ala Trp Glu His Arg Arg Phe Pro Trp Thr Phe Asp	
65 70 75 80	
Val Arg Glu Arg Leu Asn Ile Ile Asp Cys Gly Asp Leu Val Phe Ser	
85 90 95	

Phe Gly Asp Ser Arg Asp Phe Val Glu Lys Met Glu Ala His Ala Gly
 100 105 110
 Lys Leu Leu Ser Ser Gly Lys Arg Cys Leu Ser Leu Gly Gly Asp His
 115 120 125
 Phe Ile Thr Leu Pro Leu Leu Arg Ala His Ala Arg Tyr Phe Gly Lys
 130 135 140
 Leu Ala Leu Ile His Phe Asp Ala His Thr Asp Thr Tyr Asp Asn Gly
 145 150 155 160
 Ser Glu Tyr Asp His Gly Thr Met Phe Tyr Thr Ala Pro Lys Glu Gly
 165 170 175
 Leu Ile Asp Pro Ser Arg Ser Val Gln Ile Gly Ile Arg Thr Glu His
 180 185 190
 Ser Lys Lys Leu Pro Phe Thr Val Leu Thr Ala Pro Gln Val Asn Glu
 195 200 205
 Asp Ser Val Glu Glu Thr Val Arg Lys Ile Lys Glu Thr Val Gly Asn
 210 215 220
 Met Pro Val Tyr Leu Thr Phe Asp Ile Asp Cys Leu Asp Pro Ser Phe
 225 230 235 240
 Ala Pro Gly Thr Gly Thr Pro Val Cys Gly Gly Leu Ser Ser Asp Arg
 245 250 255
 Ala Leu Lys Ile Leu Arg Gly Leu Thr Asp Leu Asp Ile Val Gly Met
 260 265 270
 Asp Val Val Glu Val Ala Pro Ser Tyr Asp Gln Ser Asp Ile Thr Ala
 275 280 285
 Leu Ala Gly Ala Thr Ile Ala Leu Glu Met Leu Tyr Leu Gln Gly Ala
 290 295 300
 Lys Lys Asp
 305

<210> 25
 <211> 426
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> CDS
 <222> (1)..(423)

<400> 25
 atg gag cag tcg ggc aaa ttc agt tgg tct gcg gca gct ttt tgg gac 48
 Met Glu Gln Ser Gly Lys Phe Ser Trp Ser Ala Ala Ala Phe Trp Asp
 1 5 10 15

att ccc tac ccc gtc acc agg cgg att gcc tca agt ttg tat tcg acc	96
Ile Pro Tyr Pro Val Thr Arg Arg Ile Ala Ser Ser Leu Tyr Ser Thr	
20 25 30	
gaa tat ttt gtc gta tgc ttt ctg cgt ttg atg cca ctc tct ccg tgt	144
Glu Tyr Phe Val Val Cys Phe Leu Arg Leu Met Pro Leu Ser Pro Cys	
35 40 45	
aat ctg tat ttt gtc acc cat ctg cgt acc aat gaa tcg gaa ata gaa	192
Asn Leu Tyr Phe Val Thr His Leu Arg Thr Asn Glu Ser Glu Ile Glu	
50 55 60	
aga tgg tct gct gtt ccc tgc caa ata gta ttg aac gac ggc aag tcg	240
Arg Trp Ser Ala Val Pro Cys Gln Ile Val Leu Asn Asp Gly Lys Ser	
65 70 75 80	
gaa ttc ggc gga ttc gca ttt gaa gtg caa ctt tcc cta aca gaa aaa	288
Glu Phe Gly Gly Phe Ala Phe Glu Val Gln Leu Ser Leu Thr Glu Lys	
85 90 95	
ggc cag tat gcg gta gca tac gac ctt tcc tgc aag aaa gat tgc cat	336
Gly Gln Tyr Ala Val Ala Tyr Asp Leu Ser Cys Lys Lys Asp Cys His	
100 105 110	
gag cta cac gca act gac cca agg cga acg ata cca cat cca ata cct	384
Glu Leu His Ala Thr Asp Pro Arg Arg Thr Ile Pro His Pro Ile Pro	
115 120 125	
gtc ccg cca ctg cac cgt cac cga aat cgc caa aca gct taa	426
Val Pro Pro Leu His Arg His Arg Asn Arg Gln Thr Ala	
130 135 140	

<210> 26
 <211> 141
 <212> PRT
 <213> Neisseria meningitidis

<400> 26	
Met Glu Gln Ser Gly Lys Phe Ser Trp Ser Ala Ala Ala Phe Trp Asp	
1 5 10 15	
Ile Pro Tyr Pro Val Thr Arg Arg Ile Ala Ser Ser Leu Tyr Ser Thr	
20 25 30	
Glu Tyr Phe Val Val Cys Phe Leu Arg Leu Met Pro Leu Ser Pro Cys	
35 40 45	
Asn Leu Tyr Phe Val Thr His Leu Arg Thr Asn Glu Ser Glu Ile Glu	
50 55 60	
Arg Trp Ser Ala Val Pro Cys Gln Ile Val Leu Asn Asp Gly Lys Ser	
65 70 75 80	
Glu Phe Gly Gly Phe Ala Phe Glu Val Gln Leu Ser Leu Thr Glu Lys	
85 90 95	

Gly Gln Tyr Ala Val Ala Tyr Asp Leu Ser Cys Lys Lys Asp Cys His
100 105 110

Glu Leu His Ala Thr Asp Pro Arg Arg Thr Ile Pro His Pro Ile Pro
115 120 125

Val Pro Pro Leu His Arg His Arg Asn Arg Gln Thr Ala
130 135 140

<210> 27
<211> 351
<212> DNA
<213> Neisseria meningitidis

<220>
<221> CDS
<222> (1)..(348)

<400> 27
atg caa aac ggc ggg gga aag att tac cag acg gcg gac aat gtg gaa 48
Met Gln Asn Gly Gly Gly Lys Ile Tyr Gln Thr Ala Asp Asn Val Glu
1 5 10 15

ggg att atg ctg ttg aag gta gta cct gag cgt acc gtt tcg gca gat 96
Gly Ile Met Leu Lys Val Val Pro Glu Arg Thr Val Ser Ala Asp
20 25 30

gca aaa acc aga gac ccg atg tgg gac aat gcg gct tta cag acc agc 144
Ala Lys Thr Arg Asp Pro Met Trp Asp Asn Ala Ala Leu Gln Thr Ser
35 40 45

gaa ggc gta aat ttt att gct cgt ttc cta gga ttt ttt agc gat ggg 192
Glu Gly Val Asn Phe Ile Ala Arg Phe Leu Gly Phe Phe Ser Asp Gly
50 55 60

gaa tac cgc tat gtg gat gtc ctg caa ccc aac cat tcc gat att att 240
Glu Tyr Arg Tyr Val Asp Val Leu Gln Pro Asn His Ser Asp Ile Ile
65 70 75 80

cgg tat tca ggt aaa gat ttt ccg cta aat caa ata ctt aac cat ata 288
Arg Tyr Ser Gly Lys Asp Phe Pro Leu Asn Gln Ile Leu Asn His Ile
85 90 95

cac ccc gcc cgt tat gcg gta acg ttc gaa aac aat gtc gat tcc aag 336
His Pro Ala Arg Tyr Ala Val Thr Phe Glu Asn Asn Val Asp Ser Lys
100 105 110

ctg cgc agg cac tga 351
Leu Arg Arg His
115

<210> 28
<211> 116

<212> PRT
<213> Neisseria meningitidis

<400> 28

Met Gln Asn Gly Gly Gly Lys Ile Tyr Gln Thr Ala Asp Asn Val Glu
1 5 10 15

Gly Ile Met Leu Leu Lys Val Val Pro Glu Arg Thr Val Ser Ala Asp
20 25 30

Ala Lys Thr Arg Asp Pro Met Trp Asp Asn Ala Ala Leu Gln Thr Ser
35 40 45

Glu Gly Val Asn Phe Ile Ala Arg Phe Leu Gly Phe Phe Ser Asp Gly
50 55 60

Glu Tyr Arg Tyr Val Asp Val Leu Gln Pro Asn His Ser Asp Ile Ile
65 70 75 80

Arg Tyr Ser Gly Lys Asp Phe Pro Leu Asn Gln Ile Leu Asn His Ile
85 90 95

His Pro Ala Arg Tyr Ala Val Thr Phe Glu Asn Asn Val Asp Ser Lys
100 105 110

Leu Arg Arg His
115

<210> 29
<211> 1404
<212> DNA
<213> Neisseria meningitidis

<220>
<221> CDS
<222> (1)..(1401)

<400> 29

atg aca ttg ctc aat cta atg ata atg caa gat tac ggt att tcc gtt 48
Met Thr Leu Leu Asn Leu Met Ile Met Gln Asp Tyr Gly Ile Ser Val
1 5 10 15

tgc ctg aca ctg acg ccc tat ttg caa cat gaa cta ttt tcg gct atg 96
Cys Leu Thr Leu Thr Pro Tyr Leu Gln His Glu Leu Phe Ser Ala Met
20 25 30

aaa tcc tat ttt tcc aaa tat atc cta ccc gtt tca ctt ttt acc ttg 144
Lys Ser Tyr Phe Ser Lys Tyr Ile Leu Pro Val Ser Leu Phe Thr Leu
35 40 45

cca cta tcc ctt tcc cca tcc gtt tcg gct ttt acg ctg cct gaa gca 192
Pro Leu Ser Leu Ser Pro Ser Val Ser Ala Phe Thr Leu Pro Glu Ala
50 55 60

tgg cgg gcg gcg cag caa cat tcg gct gat ttt caa gcg tcc cat tac 240

Trp	Arg	Ala	Ala	Gln	Gln	His	Ser	Ala	Asp	Phe	Gln	Ala	Ser	His	Tyr	
65					70					75					80	
cag	cgt	gat	gca	gtg	cgc	gca	cgg	caa	caa	caa	gcc	aag	gcc	gca	ttc	288
Gln	Arg	Asp	Ala	Val	Arg	Ala	Arg	Gln	Gln	Gln	Ala	Lys	Ala	Ala	Phe	
				85					90					95		
ctt	ccc	cat	gta	tcc	gcc	aat	gcc	agc	tac	cag	cgc	cag	ccg	cca	tcg	336
Leu	Pro	His	Val	Ser	Ala	Asn	Ala	Ser	Tyr	Gln	Arg	Gln	Pro	Pro	Ser	
			100					105					110			
att	tct	tcc	acc	cgc	gaa	aca	cag	gga	tgg	agc	gtg	cag	gtg	gga	caa	384
Ile	Ser	Ser	Thr	Arg	Glu	Thr	Gln	Gly	Trp	Ser	Val	Gln	Val	Gly	Gln	
		115					120					125				
acc	tta	ttt	gac	gct	gcc	aaa	ttt	gca	caa	tac	cgc	caa	agc	agg	ttc	432
Thr	Leu	Phe	Asp	Ala	Ala	Lys	Phe	Ala	Gln	Tyr	Arg	Gln	Ser	Arg	Phe	
	130					135					140					
gat	acg	cag	gct	gca	gaa	cag	cgt	ttc	gat	gcg	gca	cgc	gaa	gaa	ttg	480
Asp	Thr	Gln	Ala	Ala	Glu	Gln	Arg	Phe	Asp	Ala	Ala	Arg	Glu	Glu	Leu	
145					150					155					160	
ctg	ttg	aaa	gtt	gcc	gaa	agt	tat	ttc	aac	gtt	tta	ctc	agc	cga	gac	528
Leu	Leu	Lys	Val	Ala	Glu	Ser	Tyr	Phe	Asn	Val	Leu	Leu	Ser	Arg	Asp	
			165					170						175		
acc	gtt	gcc	gcc	cat	gcg	gcg	gaa	aaa	gag	gct	tat	gcc	cag	cag	gta	576
Thr	Val	Ala	Ala	His	Ala	Ala	Glu	Lys	Glu	Ala	Tyr	Ala	Gln	Gln	Val	
			180					185					190			
agg	cag	gcg	cag	gct	tta	ttc	aat	aaa	ggg	gct	gcc	acc	gcg	ctg	gat	624
Arg	Gln	Ala	Gln	Ala	Leu	Phe	Asn	Lys	Gly	Ala	Ala	Thr	Ala	Leu	Asp	
		195					200					205				
att	cac	gaa	gcc	aaa	gcc	ggg	tac	gac	aat	gcc	ctg	gcc	caa	gaa	atc	672
Ile	His	Glu	Ala	Lys	Ala	Gly	Tyr	Asp	Asn	Ala	Leu	Ala	Gln	Glu	Ile	
	210					215					220					
gcc	gta	ttg	gct	gag	aaa	caa	acc	tat	gaa	aac	cag	ttg	aac	gac	tac	720
Ala	Val	Leu	Ala	Glu	Lys	Gln	Thr	Tyr	Glu	Asn	Gln	Leu	Asn	Asp	Tyr	
225					230					235				240		
acc	gac	ctg	gat	agc	aaa	caa	atc	gag	gcc	ata	gat	acc	gcc	aac	ctg	768
Thr	Asp	Leu	Asp	Ser	Lys	Gln	Ile	Glu	Ala	Ile	Asp	Thr	Ala	Asn	Leu	
				245					250					255		
ttg	gca	cgc	tat	ctg	ccc	aag	ctg	gaa	cgt	tac	agt	ctg	gat	gaa	tgg	816
Leu	Ala	Arg	Tyr	Leu	Pro	Lys	Leu	Glu	Arg	Tyr	Ser	Leu	Asp	Glu	Trp	
			260					265					270			
cag	cgc	att	gcc	tta	tcc	aac	aat	cat	gaa	tac	cgg	atg	cag	cag	ctt	864
Gln	Arg	Ile	Ala	Leu	Ser	Asn	Asn	His	Glu	Tyr	Arg	Met	Gln	Gln	Leu	
		275					280					285				
gcc	ctg	caa	agc	agc	gga	cag	gcg	ctt	cgg	gca	gca	cag	aac	agc	cgc	912
Ala	Leu	Gln	Ser	Ser	Gly	Gln	Ala	Leu	Arg	Ala	Ala	Gln	Asn	Ser	Arg	

290	295	300	
tat ccc acc gtt tct gcc cat gtc ggc tat cag aat aac ctc tac act			960
Tyr Pro Thr Val Ser Ala His Val Gly Tyr Gln Asn Asn Leu Tyr Thr			
305	310	315	320
tca tct gcg cag aat aat gac tac cac tat cgg ggc aaa ggg atg agc			1008
Ser Ser Ala Gln Asn Asn Asp Tyr His Tyr Arg Gly Lys Gly Met Ser			
	325	330	335
gtc ggc gta cag ttg aat ttg ccg ctt tat acc ggc gga gaa ttg tcg			1056
Val Gly Val Gln Leu Asn Leu Pro Leu Tyr Thr Gly Gly Glu Leu Ser			
	340	345	350
ggc aaa atc cat gaa gcc gaa gcg caa tac ggg gcc gcc gaa gca cag			1104
Gly Lys Ile His Glu Ala Glu Ala Gln Tyr Gly Ala Ala Glu Ala Gln			
	355	360	365
ctg acc gca acc gag cgg cac atc aaa ctc gcc gta cgc cag gct tat			1152
Leu Thr Ala Thr Glu Arg His Ile Lys Leu Ala Val Arg Gln Ala Tyr			
	370	375	380
acc gaa agc ggt gcg gcg cgt tac caa atc atg gcg caa gaa cgg gtt			1200
Thr Glu Ser Gly Ala Ala Arg Tyr Gln Ile Met Ala Gln Glu Arg Val			
385	390	395	400
ttg gaa agc agc cgt ttg aaa ctg aaa tcg acc gaa acc ggc caa caa			1248
Leu Glu Ser Ser Arg Leu Lys Leu Lys Ser Thr Glu Thr Gly Gln Gln			
	405	410	415
tac ggc atc cgc aac cgg ctg gaa gta ata cgg gcg cgg cag gaa gtc			1296
Tyr Gly Ile Arg Asn Arg Leu Glu Val Ile Arg Ala Arg Gln Glu Val			
	420	425	430
gcc caa gca gaa cag aaa ctg gct caa gca cgg tat aaa ttc atg ctg			1344
Ala Gln Ala Glu Gln Lys Leu Ala Gln Ala Arg Tyr Lys Phe Met Leu			
	435	440	445
gct tat ttg cgc ttg gtg aaa gag agc ggg tta ggg ttg gaa acg gta			1392
Ala Tyr Leu Arg Leu Val Lys Glu Ser Gly Leu Gly Leu Glu Thr Val			
	450	455	460
ttt gcg gaa taa			1404
Phe Ala Glu			
465			

<210> 30
 <211> 467
 <212> PRT
 <213> Neisseria meningitidis

<400> 30
 Met Thr Leu Leu Asn Leu Met Ile Met Gln Asp Tyr Gly Ile Ser Val
 1 5 10 15

Cys Leu Thr Leu Thr Pro Tyr Leu Gln His Glu Leu Phe Ser Ala Met

20					25					30						
Lys	Ser	Tyr	Phe	Ser	Lys	Tyr	Ile	Leu	Pro	Val	Ser	Leu	Phe	Thr	Leu	
35					40					45						
Pro	Leu	Ser	Leu	Ser	Pro	Ser	Val	Ser	Ala	Phe	Thr	Leu	Pro	Glu	Ala	
50					55					60						
Trp	Arg	Ala	Ala	Gln	Gln	His	Ser	Ala	Asp	Phe	Gln	Ala	Ser	His	Tyr	
65					70					75					80	
Gln	Arg	Asp	Ala	Val	Arg	Ala	Arg	Gln	Gln	Gln	Ala	Lys	Ala	Ala	Phe	
85					90					95						
Leu	Pro	His	Val	Ser	Ala	Asn	Ala	Ser	Tyr	Gln	Arg	Gln	Pro	Pro	Ser	
100					105					110						
Ile	Ser	Ser	Thr	Arg	Glu	Thr	Gln	Gly	Trp	Ser	Val	Gln	Val	Gly	Gln	
115					120					125						
Thr	Leu	Phe	Asp	Ala	Ala	Lys	Phe	Ala	Gln	Tyr	Arg	Gln	Ser	Arg	Phe	
130					135					140						
Asp	Thr	Gln	Ala	Ala	Glu	Gln	Arg	Phe	Asp	Ala	Ala	Arg	Glu	Glu	Leu	
145					150					155					160	
Leu	Leu	Lys	Val	Ala	Glu	Ser	Tyr	Phe	Asn	Val	Leu	Leu	Ser	Arg	Asp	
165					170					175						
Thr	Val	Ala	Ala	His	Ala	Ala	Glu	Lys	Glu	Ala	Tyr	Ala	Gln	Gln	Val	
180					185					190						
Arg	Gln	Ala	Gln	Ala	Leu	Phe	Asn	Lys	Gly	Ala	Ala	Thr	Ala	Leu	Asp	
195					200					205						
Ile	His	Glu	Ala	Lys	Ala	Gly	Tyr	Asp	Asn	Ala	Leu	Ala	Gln	Glu	Ile	
210					215					220						
Ala	Val	Leu	Ala	Glu	Lys	Gln	Thr	Tyr	Glu	Asn	Gln	Leu	Asn	Asp	Tyr	
225					230					235					240	
Thr	Asp	Leu	Asp	Ser	Lys	Gln	Ile	Glu	Ala	Ile	Asp	Thr	Ala	Asn	Leu	
245					250					255						
Leu	Ala	Arg	Tyr	Leu	Pro	Lys	Leu	Glu	Arg	Tyr	Ser	Leu	Asp	Glu	Trp	
260					265					270						
Gln	Arg	Ile	Ala	Leu	Ser	Asn	Asn	His	Glu	Tyr	Arg	Met	Gln	Gln	Leu	
275					280					285						
Ala	Leu	Gln	Ser	Ser	Gly	Gln	Ala	Leu	Arg	Ala	Ala	Gln	Asn	Ser	Arg	
290					295					300						
Tyr	Pro	Thr	Val	Ser	Ala	His	Val	Gly	Tyr	Gln	Asn	Asn	Leu	Tyr	Thr	
305					310					315					320	
Ser	Ser	Ala	Gln	Asn	Asn	Asp	Tyr	His	Tyr	Arg	Gly	Lys	Gly	Met	Ser	

325										330					335				
Val	Gly	Val	Gln	Leu	Asn	Leu	Pro	Leu	Tyr	Thr	Gly	Gly	Glu	Leu	Ser				
			340						345				350						
Gly	Lys	Ile	His	Glu	Ala	Glu	Ala	Gln	Tyr	Gly	Ala	Ala	Glu	Ala	Gln				
		355						360				365							
Leu	Thr	Ala	Thr	Glu	Arg	His	Ile	Lys	Leu	Ala	Val	Arg	Gln	Ala	Tyr				
	370					375					380								
Thr	Glu	Ser	Gly	Ala	Ala	Arg	Tyr	Gln	Ile	Met	Ala	Gln	Glu	Arg	Val				
385					390					395					400				
Leu	Glu	Ser	Ser	Arg	Leu	Lys	Leu	Lys	Ser	Thr	Glu	Thr	Gly	Gln	Gln				
				405					410					415					
Tyr	Gly	Ile	Arg	Asn	Arg	Leu	Glu	Val	Ile	Arg	Ala	Arg	Gln	Glu	Val				
			420					425					430						
Ala	Gln	Ala	Glu	Gln	Lys	Leu	Ala	Gln	Ala	Arg	Tyr	Lys	Phe	Met	Leu				
		435					440					445							
Ala	Tyr	Leu	Arg	Leu	Val	Lys	Glu	Ser	Gly	Leu	Gly	Leu	Glu	Thr	Val				
	450					455					460								
Phe	Ala	Glu																	
465																			

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 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (1)..(693)

<400> 31																	
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Met	Lys	Gln	Ser	Ala	Arg	Ile	Lys	Asn	Met	Asp	Gln	Thr	Leu	Lys	Asn		
1				5				10					15				
aca ttg ggc att tgc gcg ctt tta gcc ttt tgt ttt ggc gcg gcc atc 96																	
Thr	Leu	Gly	Ile	Cys	Ala	Leu	Leu	Ala	Phe	Cys	Phe	Gly	Ala	Ala	Ile		
			20					25					30				
gca tca ggt tat cac ttg gaa tat gaa tac ggc tac cgt tat tct gcc 144																	
Ala	Ser	Gly	Tyr	His	Leu	Glu	Tyr	Glu	Tyr	Gly	Tyr	Arg	Tyr	Ser	Ala		
		35					40					45					
gtg ggt gct ttg gct tcg gtt gta ttt tta tta tta ttg gca cgc ggt 192																	
Val	Gly	Ala	Leu	Ala	Ser	Val	Val	Phe	Leu	Leu	Leu	Leu	Ala	Arg	Gly		
		50					55					60					

ttc	cgc	cgc	gtt	tct	tca	gtt	gtt	tta	ctg	att	tac	gtc	ggc	aca	acc	240
Phe	Pro	Arg	Val	Ser	Ser	Val	Val	Leu	Leu	Ile	Tyr	Val	Gly	Thr	Thr	
65					70					75					80	

gcc	cta	tat	ttg	cgc	gtc	ggc	tgg	ctg	tat	ggg	gcg	cgc	tct	tat	cag	288
Ala	Leu	Tyr	Leu	Pro	Val	Gly	Trp	Leu	Tyr	Gly	Ala	Pro	Ser	Tyr	Gln	
			85					90						95		

ata	gtc	ggg	tgc	ata	ttg	gaa	agc	aat	cct	gcc	gag	gcg	cgt	gaa	ttt	336
Ile	Val	Gly	Ser	Ile	Leu	Glu	Ser	Asn	Pro	Ala	Glu	Ala	Arg	Glu	Phe	
			100					105					110			

gtc	ggc	aat	ctt	ccc	ggg	tgc	ctt	tat	ttt	gtg	cag	gca	tta	ttt	ttc	384
Val	Gly	Asn	Leu	Pro	Gly	Ser	Leu	Tyr	Phe	Val	Gln	Ala	Leu	Phe	Phe	
		115					120					125				

att	ttt	ggc	ttg	aca	gtt	tgg	aga	tat	tgt	gta	tgc	ggg	ggg	gta	ttt	432
Ile	Phe	Gly	Leu	Thr	Val	Trp	Arg	Tyr	Cys	Val	Ser	Gly	Gly	Val	Phe	
	130					135					140					

gct	gac	gta	aaa	aac	tat	aaa	cgc	cgc	agc	aaa	ata	tgg	ctg	act	ata	480
Ala	Asp	Val	Lys	Asn	Tyr	Lys	Arg	Arg	Ser	Lys	Ile	Trp	Leu	Thr	Ile	
145					150					155					160	

tta	ttg	act	ttg	att	ttg	tcc	tgc	gcg	gtg	atg	gat	aaa	atc	gcc	agc	528
Leu	Leu	Thr	Leu	Ile	Leu	Ser	Cys	Ala	Val	Met	Asp	Lys	Ile	Ala	Ser	
				165					170					175		

gat	aaa	gat	ttg	cga	gaa	cct	gat	gcc	ggc	ctg	ttg	ttg	aat	att	ttc	576
Asp	Lys	Asp	Leu	Arg	Glu	Pro	Asp	Ala	Gly	Leu	Leu	Leu	Asn	Ile	Phe	
			180					185					190			

gac	ctg	tat	tac	gat	ttg	gct	tcc	gcg	cgc	gca	cca	ata	tgt	cgc	caa	624
Asp	Leu	Tyr	Tyr	Asp	Leu	Ala	Ser	Ala	Pro	Ala	Pro	Ile	Cys	Arg	Gln	
		195					200					205				

gcg	cgc	cca	cat	ttt	gga	agc	agc	aaa	aaa	agc	gtc	aac	atg	gca	tat	672
Ala	Arg	Pro	His	Phe	Gly	Ser	Ser	Lys	Lys	Ser	Val	Asn	Met	Ala	Tyr	
	210					215					220					

cgc	tca	tgt	tgc	gcc	caa	gta	taa									696
Pro	Ser	Cys	Cys	Ala	Gln	Val										
225					230											

<210> 32
 <211> 231
 <212> PRT
 <213> Neisseria meningitidis

<400> 32																
Met	Lys	Gln	Ser	Ala	Arg	Ile	Lys	Asn	Met	Asp	Gln	Thr	Leu	Lys	Asn	
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Thr	Leu	Gly	Ile	Cys	Ala	Leu	Leu	Ala	Phe	Cys	Phe	Gly	Ala	Ala	Ile	
		20						25					30			

20										25					30					
aat	ctt	tcg	ctg	ccg	cag	act	ttg	ggg	ctg	ccg	gga	gag	ccg	aac	aat	144				
Asn	Leu	Ser	Leu	Pro	Gln	Thr	Leu	Gly	Leu	Pro	Gly	Glu	Pro	Asn	Asn					
35				40				45												
aac	att	gtc	agc	ttg	gcg	aag	cag	gcg	ggg	ttt	cgg	acg	gcg	tgg	ctg	192				
Asn	Ile	Val	Ser	Leu	Ala	Lys	Gln	Ala	Gly	Phe	Arg	Thr	Ala	Trp	Leu					
50				55				60												
tct	aat	caa	gga	atg	ttg	ggg	cat	ttt	gcc	aac	gaa	att	tcc	acc	tat	240				
Ser	Asn	Gln	Gly	Met	Leu	Gly	His	Phe	Ala	Asn	Glu	Ile	Ser	Thr	Tyr					
65				70				75				80								
gcc	cta	cgc	agc	gat	tat	ccg	tgg	ttt	acc	caa	agg	ggg	gat	tat	ggc	288				
Ala	Leu	Arg	Ser	Asp	Tyr	Pro	Trp	Phe	Thr	Gln	Arg	Gly	Asp	Tyr	Gly					
85				90				95												
aaa	agc	gcg	ggg	ttg	agc	gac	cgc	ctt	ttg	ttg	ccg	gcg	ttc	aaa	cgg	336				
Lys	Ser	Ala	Gly	Leu	Ser	Asp	Arg	Leu	Leu	Leu	Pro	Ala	Phe	Lys	Arg					
100				105				110												
gtt	ttg	ata	gga	aat	gca	ggc	acg	aag	cct	cgg	ctg	att	gtg	atg	cac	384				
Val	Leu	Ile	Gly	Asn	Ala	Gly	Thr	Lys	Pro	Arg	Leu	Ile	Val	Met	His					
115				120				125												
ctg	atg	ggg	tcg	cac	agt	gat	ttt	tgc	aca	cgt	ttg	gat	aag	gat	gcg	432				
Leu	Met	Gly	Ser	His	Ser	Asp	Phe	Cys	Thr	Arg	Leu	Asp	Lys	Asp	Ala					
130				135				140												
cgg	cgg	ttt	cag	tat	caa	act	gaa	aaa	ata	tcc	tgc	tat	gtt	tcc	acc	480				
Arg	Arg	Phe	Gln	Tyr	Gln	Thr	Glu	Lys	Ile	Ser	Cys	Tyr	Val	Ser	Thr					
145				150				155				160								
atc	gcg	caa	acc	gat	aaa	ttt	tta	gaa	gat	aca	gtt	aag	ata	ttg	aat	528				
Ile	Ala	Gln	Thr	Asp	Lys	Phe	Leu	Glu	Asp	Thr	Val	Lys	Ile	Leu	Asn					
165				170				175												
gaa	aat	aaa	gaa	agc	tgg	tct	ttg	gtt	tac	ttt	tcc	gac	cac	ggg	ttg	576				
Glu	Asn	Lys	Glu	Ser	Trp	Ser	Leu	Val	Tyr	Phe	Ser	Asp	His	Gly	Leu					
180				185				190												
atg	cat	gtc	ggg	aaa	ggc	ggc	gag	cga	acg	ttg	aca	cat	ggg	gcg	tgg	624				
Met	His	Val	Gly	Lys	Gly	Gly	Glu	Arg	Thr	Leu	Thr	His	Gly	Ala	Trp					
195				200				205												
aag	cgt	caa	agc	tac	ggc	gtg	ccg	ctg	gtt	aaa	att	tcg	tcc	gat	gac	672				
Lys	Arg	Gln	Ser	Tyr	Gly	Val	Pro	Leu	Val	Lys	Ile	Ser	Ser	Asp	Asp					
210				215				220												
acg	cgg	cgc	gaa	atg	att	aaa	gtg	agg	cgc	agc	gcg	ttt	aat	ttt	tta	720				
Thr	Arg	Arg	Glu	Met	Ile	Lys	Val	Arg	Arg	Ser	Ala	Phe	Asn	Phe	Leu					
225				230				235				240								
cgc	gga	ttc	ggc	agt	tgg	acg	ggg	atc	gaa	acc	gac	gag	ttg	ccc	gat	768				
Arg	Gly	Phe	Gly	Ser	Trp	Thr	Gly	Ile	Glu	Thr	Asp	Glu	Leu	Pro	Asp					
245				250				255												

gac ggc tat gat ttt tgg ggg aat gtt ccc gat gtg cag ggc gaa ggc 816
 Asp Gly Tyr Asp Phe Trp Gly Asn Val Pro Asp Val Gln Gly Glu Gly
 260 265 270

aat aac ctt gcc ttt atc gac gga ctg ccc gac gac ccc gcg ccg tgg 864
 Asn Asn Leu Ala Phe Ile Asp Gly Leu Pro Asp Asp Pro Ala Pro Trp
 275 280 285

tat gcg gga aaa ggc aaa tcg act aaa aat acg tct aaa aaa tga 909
 Tyr Ala Gly Lys Gly Lys Ser Thr Lys Asn Thr Ser Lys Lys
 290 295 300

<210> 34
 <211> 302
 <212> PRT
 <213> Neisseria meningitidis

<400> 34
 Met Asn Val Tyr Gly Phe Pro Leu Pro Asp Thr Pro Phe Leu Ser Arg
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Thr Lys Gly Leu Leu Ile Asn Gly Tyr His Phe Thr Ala His Ala Thr
 20 25 30

Asn Leu Ser Leu Pro Gln Thr Leu Gly Leu Pro Gly Glu Pro Asn Asn
 35 40 45

Asn Ile Val Ser Leu Ala Lys Gln Ala Gly Phe Arg Thr Ala Trp Leu
 50 55 60

Ser Asn Gln Gly Met Leu Gly His Phe Ala Asn Glu Ile Ser Thr Tyr
 65 70 75 80

Ala Leu Arg Ser Asp Tyr Pro Trp Phe Thr Gln Arg Gly Asp Tyr Gly
 85 90 95

Lys Ser Ala Gly Leu Ser Asp Arg Leu Leu Leu Pro Ala Phe Lys Arg
 100 105 110

Val Leu Ile Gly Asn Ala Gly Thr Lys Pro Arg Leu Ile Val Met His
 115 120 125

Leu Met Gly Ser His Ser Asp Phe Cys Thr Arg Leu Asp Lys Asp Ala
 130 135 140

Arg Arg Phe Gln Tyr Gln Thr Glu Lys Ile Ser Cys Tyr Val Ser Thr
 145 150 155 160

Ile Ala Gln Thr Asp Lys Phe Leu Glu Asp Thr Val Lys Ile Leu Asn
 165 170 175

Glu Asn Lys Glu Ser Trp Ser Leu Val Tyr Phe Ser Asp His Gly Leu
 180 185 190

Met His Val Gly Lys Gly Gly Glu Arg Thr Leu Thr His Gly Ala Trp

195		200		205
Lys Arg Gln Ser Tyr Gly Val Pro Leu Val Lys Ile Ser Ser Asp Asp				
210		215		220
Thr Arg Arg Glu Met Ile Lys Val Arg Arg Ser Ala Phe Asn Phe Leu				
225		230		235
Arg Gly Phe Gly Ser Trp Thr Gly Ile Glu Thr Asp Glu Leu Pro Asp				
	245		250	255
Asp Gly Tyr Asp Phe Trp Gly Asn Val Pro Asp Val Gln Gly Glu Gly				
	260		265	270
Asn Asn Leu Ala Phe Ile Asp Gly Leu Pro Asp Asp Pro Ala Pro Trp				
	275		280	285
Tyr Ala Gly Lys Gly Lys Ser Thr Lys Asn Thr Ser Lys Lys				
290		295		300

<210> 35
 <211> 864
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> CDS
 <222> (1)..(861)

<400> 35	
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Met Met Ser Gln His Ser Ala Gly Ala Arg Phe Arg Gln Ala Val Lys	
1 5 10 15	
gaa tcg aat ccg ctt gcc gtc gcc ggt tgc gtc aat gct tat ttt gca	96
Glu Ser Asn Pro Leu Ala Val Ala Gly Cys Val Asn Ala Tyr Phe Ala	
20 25 30	
cga ttg gcc acc caa agc ggt ttc aaa gcc atc tat ctg tcc ggc ggc	144
Arg Leu Ala Thr Gln Ser Gly Phe Lys Ala Ile Tyr Leu Ser Gly Gly	
35 40 45	
ggc gtg gca gcc tgt tct tgc ggt atc cct gat ttg ggc att acc aca	192
Gly Val Ala Ala Cys Ser Cys Gly Ile Pro Asp Leu Gly Ile Thr Thr	
50 55 60	
atg gaa gat gtg ctg atc gac gca cga cgc att acg gac aac gtg gat	240
Met Glu Asp Val Leu Ile Asp Ala Arg Arg Ile Thr Asp Asn Val Asp	
65 70 75 80	
acg cct ctg ctg gtg gac atc gat gtg ggt tgg ggc ggt gca ttc aat	288
Thr Pro Leu Leu Val Asp Ile Asp Val Gly Trp Gly Gly Ala Phe Asn	
85 90 95	
att gcc cgt acc att cgc aac ttt gaa cgc gcc ggt gtt gca gcg gtt	336

Ile	Ala	Arg	Thr	Ile	Arg	Asn	Phe	Glu	Arg	Ala	Gly	Val	Ala	Ala	Val		
			100						105					110			
cac	atc	gaa	gat	cag	gta	gcg	caa	aaa	cgc	tgc	ggc	cac	cg	ccg	aac	384	
His	Ile	Glu	Asp	Gln	Val	Ala	Gln	Lys	Arg	Cys	Gly	His	Arg	Pro	Asn		
		115					120					125					
aaa	gcc	att	gta	tct	aaa	gat	gaa	atg	gtc	gac	cg	atc	aaa	gct	gcc	432	
Lys	Ala	Ile	Val	Ser	Lys	Asp	Glu	Met	Val	Asp	Arg	Ile	Lys	Ala	Ala		
		130				135				140							
gta	gat	gcg	cg	gtt	gat	gag	aac	ttc	gtg	att	atg	g	cg	acc	gat	480	
Val	Asp	Ala	Arg	Val	Asp	Glu	Asn	Phe	Val	Ile	Met	Ala	Arg	Thr	Asp		
		145			150				155						160		
gog	ctg	g	gta	gaa	gg	ttg	gat	gcc	g	atc	gaa	cg	gcc	caa	g	528	
Ala	Leu	Ala	Val	Glu	Gly	Leu	Asp	Ala	Ala	Ile	Glu	Arg	Ala	Gln	Ala		
			165					170						175			
tgt	gtc	gaa	gcc	gg	g	gac	atg	att	ttc	cct	gaa	gcc	atg	acc	gat	576	
Cys	Val	Glu	Ala	Gly	Ala	Asp	Met	Ile	Phe	Pro	Glu	Ala	Met	Thr	Asp		
		180						185					190				
ttg	aac	atg	tac	cg	caa	ttt	gca	gat	g	gtg	aaa	gtg	ccc	gtg	ttg	624	
Leu	Asn	Met	Tyr	Arg	Gln	Phe	Ala	Asp	Ala	Val	Lys	Val	Pro	Val	Leu		
		195				200						205					
g	aac	att	acc	gag	ttt	gg	tcc	act	ccg	ctt	tat	acc	caa	agc	gag	672	
Ala	Asn	Ile	Thr	Glu	Phe	Gly	Ser	Thr	Pro	Leu	Tyr	Thr	Gln	Ser	Glu		
		210				215					220						
ctg	g	gaa	aac	ggc	gtg	t	ctg	gtg	ctg	tat	ccg	ctg	tca	t	ttc	720	
Leu	Ala	Glu	Asn	Gly	Val	Ser	Leu	Val	Leu	Tyr	Pro	Leu	Ser	Ser	Phe		
		225			230				235						240		
cg	gca	gca	agc	aaa	gcc	g	ctg	a	gtt	tac	gaa	g	att	atg	cg	768	
Arg	Ala	Ala	Ser	Lys	Ala	Ala	Leu	Asn	Val	Tyr	Glu	Ala	Ile	Met	Arg		
			245					250					255				
gat	ggc	act	tca	ggc	ggc	gg	gg	gga	cag	tat	gca	aac	ccg	tgc	cga	816	
Asp	Gly	Thr	Ser	Gly	Gly	Gly	Gly	Gly	Gln	Tyr	Ala	Asn	Pro	Cys	Arg		
		260					265					270					
g	gta	cga	gca	tct	gaa	cta	tca	tgc	ctt	cga	gca	aaa	act	gga	taa	864	
Ala	Val	Arg	Ala	Ser	Glu	Leu	Ser	Cys	Leu	Arg	Ala	Lys	Thr	Gly			
		275				280						285					

<210> 36
 <211> 287
 <212> PRT
 <213> Neisseria meningitidis

<400> 36
 Met Met Ser Gln His Ser Ala Gly Ala Arg Phe Arg Gln Ala Val Lys
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			20					25					30			
Arg	Leu	Ala	Thr	Gln	Ser	Gly	Phe	Lys	Ala	Ile	Tyr	Leu	Ser	Gly	Gly	
		35					40					45				
Gly	Val	Ala	Ala	Cys	Ser	Cys	Gly	Ile	Pro	Asp	Leu	Gly	Ile	Thr	Thr	
	50					55					60					
Met	Glu	Asp	Val	Leu	Ile	Asp	Ala	Arg	Arg	Ile	Thr	Asp	Asn	Val	Asp	
	65				70					75					80	
Thr	Pro	Leu	Leu	Val	Asp	Ile	Asp	Val	Gly	Trp	Gly	Gly	Ala	Phe	Asn	
				85					90						95	
Ile	Ala	Arg	Thr	Ile	Arg	Asn	Phe	Glu	Arg	Ala	Gly	Val	Ala	Ala	Val	
			100					105					110			
His	Ile	Glu	Asp	Gln	Val	Ala	Gln	Lys	Arg	Cys	Gly	His	Arg	Pro	Asn	
		115					120					125				
Lys	Ala	Ile	Val	Ser	Lys	Asp	Glu	Met	Val	Asp	Arg	Ile	Lys	Ala	Ala	
	130					135					140					
Val	Asp	Ala	Arg	Val	Asp	Glu	Asn	Phe	Val	Ile	Met	Ala	Arg	Thr	Asp	
	145				150					155					160	
Ala	Leu	Ala	Val	Glu	Gly	Leu	Asp	Ala	Ala	Ile	Glu	Arg	Ala	Gln	Ala	
			165					170						175		
Cys	Val	Glu	Ala	Gly	Ala	Asp	Met	Ile	Phe	Pro	Glu	Ala	Met	Thr	Asp	
		180						185					190			
Leu	Asn	Met	Tyr	Arg	Gln	Phe	Ala	Asp	Ala	Val	Lys	Val	Pro	Val	Leu	
		195					200					205				
Ala	Asn	Ile	Thr	Glu	Phe	Gly	Ser	Thr	Pro	Leu	Tyr	Thr	Gln	Ser	Glu	
	210					215					220					
Leu	Ala	Glu	Asn	Gly	Val	Ser	Leu	Val	Leu	Tyr	Pro	Leu	Ser	Ser	Phe	
	225				230					235					240	
Arg	Ala	Ala	Ser	Lys	Ala	Ala	Leu	Asn	Val	Tyr	Glu	Ala	Ile	Met	Arg	
			245						250					255		
Asp	Gly	Thr	Ser	Gly	Gly	Gly	Gly	Gly	Gln	Tyr	Ala	Asn	Pro	Cys	Arg	
		260						265					270			
Ala	Val	Arg	Ala	Ser	Glu	Leu	Ser	Cys	Leu	Arg	Ala	Lys	Thr	Gly		
		275					280					285				

<210> 37

<211> 921

<212> DNA

<213> Neisseria meningitidis

<220>

<221> CDS

<222> (1)..(918)

<400> 37

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Met Pro Ser Ser Lys Asn Trp Ile Asn Cys Phe Lys Asn Asp Leu Pro	.
1 5 10 15	
ctt tca gac tgc ctt tca aca aat ccg cat cgg tcg tct gaa aac ccg	96
Leu Ser Asp Cys Leu Ser Thr Asn Pro His Arg Ser Ser Glu Asn Pro	
20 25 30	
aaa ccc ata aaa aca caa agg aga aat acc atg act gaa act act caa	144
Lys Pro Ile Lys Thr Gln Arg Arg Asn Thr Met Thr Glu Thr Thr Gln	
35 40 45	
acc ccg acc ctc aaa cct aaa aaa tcc gtt gcg ctt tct ggc gtt gcg	192
Thr Pro Thr Leu Lys Pro Lys Lys Ser Val Ala Leu Ser Gly Val Ala	
50 55 60	
gcc ggt aat acc gct ttg tgt acc gtt ggc cgt acc ggc aac gat ttg	240
Ala Gly Asn Thr Ala Leu Cys Thr Val Gly Arg Thr Gly Asn Asp Leu	
65 70 75 80	
agc tat cgc ggt tac gac att ctg gat ttg gca caa aaa tgt gag ttt	288
Ser Tyr Arg Gly Tyr Asp Ile Leu Asp Leu Ala Gln Lys Cys Glu Phe	
85 90 95	
gaa gaa gtt gcc cac ctg ctg att cac ggc cat tta ccc aac aaa ttc	336
Glu Glu Val Ala His Leu Leu Ile His Gly His Leu Pro Asn Lys Phe	
100 105 110	
gag ctg gcc gct tat aaa gcc aag ctc aaa tcc atg cgc ggc ctg cct	384
Glu Leu Ala Ala Tyr Lys Ala Lys Leu Lys Ser Met Arg Gly Leu Pro	
115 120 125	
atc cgt gtg att aaa gtt ttg gaa agc ctg cct gca cat acc cat ccg	432
Ile Arg Val Ile Lys Val Leu Glu Ser Leu Pro Ala His Thr His Pro	
130 135 140	
atg gac gtg atg cgt acc ggc gta tcc atg ctg ggc tgt gtt cat cct	480
Met Asp Val Met Arg Thr Gly Val Ser Met Leu Gly Cys Val His Pro	
145 150 155 160	
gaa cgt gaa ggc cat ccg gaa agc gaa gcg cgc gac att gcc gac aaa	528
Glu Arg Glu Gly His Pro Glu Ser Glu Ala Arg Asp Ile Ala Asp Lys	
165 170 175	
ctg atc gcc agc ctc ggc agt atc ctc ttg tac tgg tat caa tat tcg	576
Leu Ile Ala Ser Leu Gly Ser Ile Leu Leu Tyr Trp Tyr Gln Tyr Ser	
180 185 190	
cac aac ggc aaa cgc att gaa gtt gaa agc gaa gaa gag acc atc ggc	624
His Asn Gly Lys Arg Ile Glu Val Glu Ser Glu Glu Glu Thr Ile Gly	
195 200 205	

ggt cat ttc ctg cac ctg ttg cac ggc aaa cgc cca agc gaa tca cac	672
Gly His Phe Leu His Leu Leu His Gly Lys Arg Pro Ser Glu Ser His	
210 215 220	
atc aaa gcc atg cac gtt tca ctg att ctg tat gcc gaa cac gag ttc	720
Ile Lys Ala Met His Val Ser Leu Ile Leu Tyr Ala Glu His Glu Phe	
225 230 235 240	
aac gct tct acc ttt acc gcc cgc gtg atc gcc ggt aca ggc tct gat	768
Asn Ala Ser Thr Phe Thr Ala Arg Val Ile Ala Gly Thr Gly Ser Asp	
245 250 255	
atg tac tcc agc att acc gga gca atc ggc gcg ttg aaa ggt ccg aaa	816
Met Tyr Ser Ser Ile Thr Gly Ala Ile Gly Ala Leu Lys Gly Pro Lys	
260 265 270	
cac ggc ggc gcg aac gaa ggg ctt acg ata ttc aaa aac gct acc gca	864
His Gly Gly Ala Asn Glu Gly Leu Thr Ile Phe Lys Asn Ala Thr Ala	
275 280 285	
atg ccg acg aag ccg aag ccg aca tcc gcg aac gca tcg gcc gca aag	912
Met Pro Thr Lys Pro Lys Pro Thr Ser Ala Asn Ala Ser Ala Ala Lys	
290 295 300	
aaa tcg tga	921
Lys Ser	
305	

<210> 38
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 <212> PRT
 <213> Neisseria meningitidis

<400> 38
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 Leu Ser Asp Cys Leu Ser Thr Asn Pro His Arg Ser Ser Glu Asn Pro
 20 25 30
 Lys Pro Ile Lys Thr Gln Arg Arg Asn Thr Met Thr Glu Thr Thr Gln
 35 40 45
 Thr Pro Thr Leu Lys Pro Lys Lys Ser Val Ala Leu Ser Gly Val Ala
 50 55 60
 Ala Gly Asn Thr Ala Leu Cys Thr Val Gly Arg Thr Gly Asn Asp Leu
 65 70 75 80
 Ser Tyr Arg Gly Tyr Asp Ile Leu Asp Leu Ala Gln Lys Cys Glu Phe
 85 90 95
 Glu Glu Val Ala His Leu Leu Ile His Gly His Leu Pro Asn Lys Phe
 100 105 110

Glu Leu Ala Ala Tyr Lys Ala Lys Leu Lys Ser Met Arg Gly Leu Pro
 115 120 125
 Ile Arg Val Ile Lys Val Leu Glu Ser Leu Pro Ala His Thr His Pro
 130 135 140
 Met Asp Val Met Arg Thr Gly Val Ser Met Leu Gly Cys Val His Pro
 145 150 155 160
 Glu Arg Glu Gly His Pro Glu Ser Glu Ala Arg Asp Ile Ala Asp Lys
 165 170 175
 Leu Ile Ala Ser Leu Gly Ser Ile Leu Leu Tyr Trp Tyr Gln Tyr Ser
 180 185 190
 His Asn Gly Lys Arg Ile Glu Val Glu Ser Glu Glu Glu Thr Ile Gly
 195 200 205
 Gly His Phe Leu His Leu Leu His Gly Lys Arg Pro Ser Glu Ser His
 210 215 220
 Ile Lys Ala Met His Val Ser Leu Ile Leu Tyr Ala Glu His Glu Phe
 225 230 235 240
 Asn Ala Ser Thr Phe Thr Ala Arg Val Ile Ala Gly Thr Gly Ser Asp
 245 250 255
 Met Tyr Ser Ser Ile Thr Gly Ala Ile Gly Ala Leu Lys Gly Pro Lys
 260 265 270
 His Gly Gly Ala Asn Glu Gly Leu Thr Ile Phe Lys Asn Ala Thr Ala
 275 280 285
 Met Pro Thr Lys Pro Lys Pro Thr Ser Ala Asn Ala Ser Ala Ala Lys
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 Lys Ser
 305

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 <211> 945
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 <213> Neisseria meningitidis

<220>
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 Met His Leu Cys Gly Lys Tyr Tyr Gly Val Asn Met Lys Leu Arg Asp
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 tta ctg atg gga ata ttc ttg gca gtt tct gcg gcc ctt ctg aat gca 96
 Leu Leu Met Gly Ile Phe Leu Ala Val Ser Ala Ala Leu Leu Asn Ala

20										25					30					
acc	atc	ggc	ata	ttc	agc	aag	ata	ttg	atg	gag	cag	ggc	ttg	tct	gtt	144				
Thr	Ile	Gly	Ile	Phe	Ser	Lys	Ile	Leu	Met	Glu	Gln	Gly	Leu	Ser	Val					
35						40						45								
cag	cat	att	gca	ttt	ttg	aaa	act	ttg	aca	ggg	ttc	gtg	ttt	atc	agc	192				
Gln	His	Ile	Ala	Phe	Leu	Lys	Thr	Leu	Thr	Gly	Phe	Val	Phe	Ile	Ser					
50						55						60								
att	ttg	ctt	tgc	cgt	acc	ggg	ttt	acc	aga	cag	att	gcg	gat	att	tca	240				
Ile	Leu	Leu	Cys	Arg	Thr	Gly	Phe	Thr	Arg	Gln	Ile	Ala	Asp	Ile	Ser					
65						70						75			80					
aga	aag	aaa	gag	gca	att	ttg	ccg	ttg	ctg	tta	aaa	gta	gca	att	tgt	288				
Arg	Lys	Lys	Glu	Ala	Ile	Leu	Pro	Leu	Leu	Leu	Lys	Val	Ala	Ile	Cys					
			85						90						95					
gct	ttt	ttc	gga	att	tat	acg	ttg	ttt	ttc	ttt	gaa	acc	aca	gct	tat	336				
Ala	Phe	Phe	Gly	Ile	Tyr	Thr	Leu	Phe	Phe	Phe	Glu	Thr	Thr	Ala	Tyr					
			100						105						110					
caa	tat	ggc	aat	gct	gcg	aat	gta	gta	gtt	gta	tta	atg	gca	tcg	gct	384				
Gln	Tyr	Gly	Asn	Ala	Ala	Asn	Val	Val	Val	Val	Leu	Met	Ala	Ser	Ala					
115						120						125								
gcc	gta	tct	gcc	ttg	ata	ttg	gac	agc	ata	ctg	tta	gat	gaa	cgt	att	432				
Ala	Val	Ser	Ala	Leu	Ile	Leu	Asp	Ser	Ile	Leu	Leu	Asp	Glu	Arg	Ile					
130						135						140								
tgc	att	tct	tca	gtc	gtc	ggg	gtg	ggg	ttg	gca	gta	ttg	ggg	atc	gca	480				
Cys	Ile	Ser	Ser	Val	Val	Gly	Val	Gly	Leu	Ala	Val	Leu	Gly	Ile	Ala					
145						150						155			160					
atg	att	tct	tgg	act	gga	gaa	gga	agt	tta	ggg	ttg	att	ctg	aat	gcc	528				
Met	Ile	Ser	Trp	Thr	Gly	Glu	Gly	Ser	Leu	Gly	Leu	Ile	Leu	Asn	Ala					
			165						170						175					
gca	ctg	gcg	ggc	tcg	ggc	tac	ggg	tgt	ttt	tcc	gtt	ttg	att	aag	aaa	576				
Ala	Leu	Ala	Gly	Ser	Gly	Tyr	Gly	Cys	Phe	Ser	Val	Leu	Ile	Lys	Lys					
			180						185						190					
ttc	ggc	cta	aac	ggc	ggg	att	tat	ttg	aca	cgg	ata	ttg	atg	ttt	ttt	624				
Phe	Gly	Leu	Asn	Gly	Gly	Ile	Tyr	Leu	Thr	Arg	Ile	Leu	Met	Phe	Phe					
195						200						205								
gga	agt	att	ttt	ttg	ttt	atc	cct	tca	ttg	gaa	ggg	att	gag	gat	ata	672				
Gly	Ser	Ile	Phe	Leu	Phe	Ile	Pro	Ser	Leu	Glu	Gly	Ile	Glu	Asp	Ile					
210						215						220								
cat	tgg	caa	tgg	tct	ttt	att	ccg	cca	ctc	ttg	gca	ttg	tct	tta	ttg	720				
His	Trp	Gln	Trp	Ser	Phe	Ile	Pro	Pro	Leu	Leu	Ala	Leu	Ser	Leu	Leu					
225						230						235			240					
ccg	acg	att	tta	gga	ttt	tat	tgt	aca	act	aaa	gca	ttg	gat	tat	ttg	768				
Pro	Thr	Ile	Leu	Gly	Phe	Tyr	Cys	Thr	Thr	Lys	Ala	Leu	Asp	Tyr	Leu					
			245						250						255					

agt gct gcg aag gta cag gta act gaa ttg gcc gag cca ttg ttt gct	816
Ser Ala Ala Lys Val Gln Val Thr Glu Leu Ala Glu Pro Leu Phe Ala	
260 265 270	

gcc gta ctg gct tgg ttg ttt ttg aat gaa ata ccg gaa gga cgc ttc	864
Ala Val Leu Ala Trp Leu Phe Leu Asn Glu Ile Pro Glu Gly Arg Phe	
275 280 285	

ttt gtc ggc gcc att ctg att att gcc ggt att gtg tct atc aat ggg	912
Phe Val Gly Ala Ile Leu Ile Ile Ala Gly Ile Val Ser Ile Asn Gly	
290 295 300	

ctg tat cga cca ttg ttg aag cga att gaa taa	945
Leu Tyr Arg Pro Leu Leu Lys Arg Ile Glu	
305 310	

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Thr Ile Gly Ile Phe Ser Lys Ile Leu Met Glu Gln Gly Leu Ser Val	
35 40 45	
Gln His Ile Ala Phe Leu Lys Thr Leu Thr Gly Phe Val Phe Ile Ser	
50 55 60	
Ile Leu Leu Cys Arg Thr Gly Phe Thr Arg Gln Ile Ala Asp Ile Ser	
65 70 75 80	
Arg Lys Lys Glu Ala Ile Leu Pro Leu Leu Lys Val Ala Ile Cys	
85 90 95	
Ala Phe Phe Gly Ile Tyr Thr Leu Phe Phe Phe Glu Thr Thr Ala Tyr	
100 105 110	
Gln Tyr Gly Asn Ala Ala Asn Val Val Val Val Leu Met Ala Ser Ala	
115 120 125	
Ala Val Ser Ala Leu Ile Leu Asp Ser Ile Leu Leu Asp Glu Arg Ile	
130 135 140	
Cys Ile Ser Ser Val Val Gly Val Gly Leu Ala Val Leu Gly Ile Ala	
145 150 155 160	
Met Ile Ser Trp Thr Gly Glu Gly Ser Leu Gly Leu Ile Leu Asn Ala	
165 170 175	

Ala Leu Ala Gly Ser Gly Tyr Gly Cys Phe Ser Val Leu Ile Lys Lys
180 185 190

Phe Gly Leu Asn Gly Gly Ile Tyr Leu Thr Arg Ile Leu Met Phe Phe
195 200 205

Gly Ser Ile Phe Leu Phe Ile Pro Ser Leu Glu Gly Ile Glu Asp Ile
210 215 220

His Trp Gln Trp Ser Phe Ile Pro Pro Leu Leu Ala Leu Ser Leu Leu
225 230 235 240

Pro Thr Ile Leu Gly Phe Tyr Cys Thr Thr Lys Ala Leu Asp Tyr Leu
245 250 255

Ser Ala Ala Lys Val Gln Val Thr Glu Leu Ala Glu Pro Leu Phe Ala
260 265 270

Ala Val Leu Ala Trp Leu Phe Leu Asn Glu Ile Pro Glu Gly Arg Phe
275 280 285

Phe Val Gly Ala Ile Leu Ile Ile Ala Gly Ile Val Ser Ile Asn Gly
290 295 300

Leu Tyr Arg Pro Leu Leu Lys Arg Ile Glu
305 310

<210> 41
<211> 2610
<212> DNA
<213> Neisseria meningitidis

<220>
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<400> 41
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Met Ala Ala Asn Gln Arg Tyr Arg Lys Pro Leu Pro Gly Thr Asp Leu
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gaa tac tac gac gcg cgt gcg gcg tgt gag gac atc aag ccc ggc tct 96
Glu Tyr Tyr Asp Ala Arg Ala Ala Cys Glu Asp Ile Lys Pro Gly Ser
20 25 30

tac gac aag ctg cct tac acg agc cgc att ttg gcg gag aat ttg gtc 144
Tyr Asp Lys Leu Pro Tyr Thr Ser Arg Ile Leu Ala Glu Asn Leu Val
35 40 45

aac cgc gcg gac aaa gtc gat ttg ccg acg ctg caa agc tgg ctg ggt 192
Asn Arg Ala Asp Lys Val Asp Leu Pro Thr Leu Gln Ser Trp Leu Gly
50 55 60

cag ctg att gag gga aaa cag gaa atc gac ttt cct tgg tat ccg gcg 240
Gln Leu Ile Glu Gly Lys Gln Glu Ile Asp Phe Pro Trp Tyr Pro Ala

65	70	75	80	
cgg gtg gtg tgc cac gat att ctg ggg cag acc gcg ttg gtg gat ttg				288
Arg Val Val Cys His Asp Ile Leu Gly Gln Thr Ala Leu Val Asp Leu	85	90	95	
gca ggt ctg cgc gat gcg att gcc gaa aaa ggc ggc gat cct gcc aaa				336
Ala Gly Leu Arg Asp Ala Ile Ala Glu Lys Gly Gly Asp Pro Ala Lys	100	105	110	
gtg aat ccg gtg gtt gca aaa ccc agc ttc atc gtc gac cac tct ctg				384
Val Asn Pro Val Val Ala Lys Pro Ser Phe Ile Val Asp His Ser Leu	115	120	125	
gcc gtt gaa tgc ggc ggc tac gac ccc gat gcc ttc cgc aaa aac cgc				432
Ala Val Glu Cys Gly Gly Tyr Asp Pro Asp Ala Phe Arg Lys Asn Arg	130	135	140	
caa atc gaa gac aga cgt aac gaa gac cgt ttc cac ttc atc aac tgg				480
Gln Ile Glu Asp Arg Arg Asn Glu Asp Arg Phe His Phe Ile Asn Trp	145	150	155	160
aca aaa acc gca ttt gaa aat gtg gac gtg att ccg gcg ggc aac ggc				528
Thr Lys Thr Ala Phe Glu Asn Val Asp Val Ile Pro Ala Gly Asn Gly	165	170	175	
atc atg cac caa atc aat cta gaa aaa atg tgc ccc gtc gtc caa gtc				576
Ile Met His Gln Ile Asn Leu Glu Lys Met Ser Pro Val Val Gln Val	180	185	190	
aaa aac ggc gtg gcg ttc ccc gat acc tgc gtc ggc acg gat tgc cac				624
Lys Asn Gly Val Ala Phe Pro Asp Thr Cys Val Gly Thr Asp Ser His	195	200	205	
acg ccg cac gtc gat gcg ctg ggc gtg att tcc gtg ggc gtg ggc gga				672
Thr Pro His Val Asp Ala Leu Gly Val Ile Ser Val Gly Val Gly Gly	210	215	220	
ttg gaa gcg gaa acc gtg atg ctg ggt cgc gcg tcc atg atg cgc ctg				720
Leu Glu Ala Glu Thr Val Met Leu Gly Arg Ala Ser Met Met Arg Leu	225	230	235	240
ccc gat att gtc ggc gtt gag ctg aac ggc aaa ccg cag gcg ggc att				768
Pro Asp Ile Val Gly Val Glu Leu Asn Gly Lys Arg Gln Ala Gly Ile	245	250	255	
acg gcg acg gat att gtg ttg gca ctg acc gag ttt ctg cgc aaa gaa				816
Thr Ala Thr Asp Ile Val Leu Ala Leu Thr Glu Phe Leu Arg Lys Glu	260	265	270	
cgc gtg gtc ggg gcg ttt gtc gaa ttc ttc ggc gag ggc gcg aga agc				864
Arg Val Val Gly Ala Phe Val Glu Phe Phe Gly Glu Gly Ala Arg Ser	275	280	285	
ctg tct atc ggc gac cgc gcg acc att tcc aac atg acg ccg gag ttc				912
Leu Ser Ile Gly Asp Arg Ala Thr Ile Ser Asn Met Thr Pro Glu Phe	290	295	300	

ggc gcg act gcc gcg atg ttc gct att gat gag caa acc att gat tat	960
Gly Ala Thr Ala Ala Met Phe Ala Ile Asp Glu Gln Thr Ile Asp Tyr	
305 310 315 320	
ttg aaa ctg acc gga cgc gac gac gcg cag gtg aaa ttg gtg gaa acc	1008
Leu Lys Leu Thr Gly Arg Asp Asp Ala Gln Val Lys Leu Val Glu Thr	
325 330 335	
tac gcc aaa acc gca ggc tta tgg gca gat gcc ttg aaa acc gcc gtt	1056
Tyr Ala Lys Thr Ala Gly Leu Trp Ala Asp Ala Leu Lys Thr Ala Val	
340 345 350	
tat ccg cgc gtt ttg aaa ttt gat ttg agc agc gta acg cgc aat atg	1104
Tyr Pro Arg Val Leu Lys Phe Asp Leu Ser Ser Val Thr Arg Asn Met	
355 360 365	
gca ggc ccg agc aac ccg cac gcg cgt ttt gcg acc gcc gat ttg gcc	1152
Ala Gly Pro Ser Asn Pro His Ala Arg Phe Ala Thr Ala Asp Leu Ala	
370 375 380	
agc aaa ggc ttg gct aaa cct tac gaa gag cct tca gac ggc caa atg	1200
Ser Lys Gly Leu Ala Lys Pro Tyr Glu Glu Pro Ser Asp Gly Gln Met	
385 390 395 400	
ccc gac ggc gcg gtc atc atc gcc gcg att acc agt tgc acc aac act	1248
Pro Asp Gly Ala Val Ile Ile Ala Ala Ile Thr Ser Cys Thr Asn Thr	
405 410 415	
tcc aac ccg cgc aac gtt gtt gcc gcc gcg ctc ttg gcg cgc aac gcc	1296
Ser Asn Pro Arg Asn Val Val Ala Ala Ala Leu Leu Ala Arg Asn Ala	
420 425 430	
aac tgc ttc ggg ctg aaa cgc aaa ccg tgg gtc aaa acc tcg ttt gcc	1344
Asn Cys Phe Gly Leu Lys Arg Lys Pro Trp Val Lys Thr Ser Phe Ala	
435 440 445	
ccc ggt tcg aaa gtg gcg gaa att tat ttg aaa gaa gca ggc ctg ctg	1392
Pro Gly Ser Lys Val Ala Glu Ile Tyr Leu Lys Glu Ala Gly Leu Leu	
450 455 460	
ccc gaa atg gaa aaa ctc ggc ttc ggt atc gtc gcc ttc gcc tgc acc	1440
Pro Glu Met Glu Lys Leu Gly Phe Gly Ile Val Ala Phe Ala Cys Thr	
465 470 475 480	
acc tgc aac ggc atg agt ggc gcg ctg gat ccg aaa atc cag aaa gaa	1488
Thr Cys Asn Gly Met Ser Gly Ala Leu Asp Pro Lys Ile Gln Lys Glu	
485 490 495	
atc atc gac cgc gat ttg tac gcc acc gcc gta tta tca ggc aac cgc	1536
Ile Ile Asp Arg Asp Leu Tyr Ala Thr Ala Val Leu Ser Gly Asn Arg	
500 505 510	
aac ttc gac ggc cgt gtc cat ccg tat gcg aaa cag gct ttc ctc gct	1584
Asn Phe Asp Gly Arg Val His Pro Tyr Ala Lys Gln Ala Phe Leu Ala	
515 520 525	

tcg cct ccg ttg gtc gtt gcc tac gcg ctg gca ggc agt atc cgt ttc	1632
Ser Pro Pro Leu Val Val Ala Tyr Ala Leu Ala Gly Ser Ile Arg Phe	
530 535 540	
gat att gaa aac gac gta ctc ggc gtt gca gac ggc aag gaa atc cgc	1680
Asp Ile Glu Asn Asp Val Leu Gly Val Ala Asp Gly Lys Glu Ile Arg	
545 550 555 560	
ctg aaa gac att tgg cct gcc gat gaa gaa atc gat gcc gtc gtt gcc	1728
Leu Lys Asp Ile Trp Pro Ala Asp Glu Glu Ile Asp Ala Val Val Ala	
565 570 575	
gaa tat gtg aaa ccg cag cag ttc cgc gat gtg tat gta ccg atg ttc	1776
Glu Tyr Val Lys Pro Gln Gln Phe Arg Asp Val Tyr Val Pro Met Phe	
580 585 590	
gac acc ggc aca gcg caa aaa gca cct agt ccg ctg tac gat tgg cgt	1824
Asp Thr Gly Thr Ala Gln Lys Ala Pro Ser Pro Leu Tyr Asp Trp Arg	
595 600 605	
ccg atg tcc acc tac atc cgc cgt ccg cct tac tgg gaa ggc gcg ctg	1872
Pro Met Ser Thr Tyr Ile Arg Arg Pro Pro Tyr Trp Glu Gly Ala Leu	
610 615 620	
gca ggg gaa cgc aca tta aga ggt atg cgt ccg ctg gcg att ttg ccc	1920
Ala Gly Glu Arg Thr Leu Arg Gly Met Arg Pro Leu Ala Ile Leu Pro	
625 630 635 640	
gac aac atc acc acc gac cac ctc tcg ccg tcc aat gcg att ttg gcc	1968
Asp Asn Ile Thr Thr Asp His Leu Ser Pro Ser Asn Ala Ile Leu Ala	
645 650 655	
gtc agt gcc gca ggc gag tat ttg gcg aaa atg ggt ttg cct gaa gaa	2016
Val Ser Ala Ala Gly Glu Tyr Leu Ala Lys Met Gly Leu Pro Glu Glu	
660 665 670	
gac ttc aac tct tac gca acc cac cgc ggc gac cac ttg acc gcc caa	2064
Asp Phe Asn Ser Tyr Ala Thr His Arg Gly Asp His Leu Thr Ala Gln	
675 680 685	
cgc gct acc ttc gcc aat ccg aaa ctg ttt aac gaa atg gtg aaa aac	2112
Arg Ala Thr Phe Ala Asn Pro Lys Leu Phe Asn Glu Met Val Lys Asn	
690 695 700	
gaa gac ggc agc gtg cgc caa ggc tcg ttc gcc cgc gtc gaa ccc gaa	2160
Glu Asp Gly Ser Val Arg Gln Gly Ser Phe Ala Arg Val Glu Pro Glu	
705 710 715 720	
ggc gaa acc atg cgc atg tgg gaa gcc atc gaa acc tat atg aac cgc	2208
Gly Glu Thr Met Arg Met Trp Glu Ala Ile Glu Thr Tyr Met Asn Arg	
725 730 735	
aaa cag ccg ctc atc atc att gcc ggt gcg gac tat ggt caa ggc tca	2256
Lys Gln Pro Leu Ile Ile Ile Ala Gly Ala Asp Tyr Gly Gln Gly Ser	
740 745 750	
agc cgc gac tgg gct gca aaa ggc gta cgc ctc gcc ggc gta gaa gcg	2304

Ser	Arg	Asp	Trp	Ala	Ala	Lys	Gly	Val	Arg	Leu	Ala	Gly	Val	Glu	Ala		
		755					760					765					
att	gtt	gcc	gaa	ggc	ttc	gag	cgt	atc	cac	cgc	acc	aac	ctt	atc	ggc	2352	
Ile	Val	Ala	Glu	Gly	Phe	Glu	Arg	Ile	His	Arg	Thr	Asn	Leu	Ile	Gly		
	770					775					780						
atg	ggc	gtg	ttg	ccg	ctg	cag	ttc	aaa	ccc	gac	acc	aac	cgc	cat	acc	2400	
Met	Gly	Val	Leu	Pro	Leu	Gln	Phe	Lys	Pro	Asp	Thr	Asn	Arg	His	Thr		
	785				790					795					800		
ctg	caa	ctg	gac	ggc	acg	gaa	acc	tac	gac	gtg	gtc	ggc	gaa	cgc	aca	2448	
Leu	Gln	Leu	Asp	Gly	Thr	Glu	Thr	Tyr	Asp	Val	Val	Gly	Glu	Arg	Thr		
				805					810					815			
ccg	cgc	tgc	gac	ctg	acc	ctc	gtg	att	cac	cgt	aaa	aac	ggc	gaa	acc	2496	
Pro	Arg	Cys	Asp	Leu	Thr	Leu	Val	Ile	His	Arg	Lys	Asn	Gly	Glu	Thr		
			820					825					830				
gtc	gaa	gtt	ccc	gtt	acc	tgc	cgc	ctc	gat	act	gca	gaa	gaa	gta	ttg	2544	
Val	Glu	Val	Pro	Val	Thr	Cys	Arg	Leu	Asp	Thr	Ala	Glu	Glu	Val	Leu		
		835					840					845					
gta	tat	gaa	gcc	ggc	ggc	gtg	ttg	caa	cgg	ttt	gca	cag	gat	ttt	ttg	2592	
Val	Tyr	Glu	Ala	Gly	Gly	Val	Leu	Gln	Arg	Phe	Ala	Gln	Asp	Phe	Leu		
	850					855					860						
gaa	ggg	aac	gcg	gct	tag											2610	
Glu	Gly	Asn	Ala	Ala													
	865																

<210> 42
 <211> 869
 <212> PRT
 <213> Neisseria meningitidis

<400> 42
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 Glu Tyr Tyr Asp Ala Arg Ala Ala Cys Glu Asp Ile Lys Pro Gly Ser
 20 25 30
 Tyr Asp Lys Leu Pro Tyr Thr Ser Arg Ile Leu Ala Glu Asn Leu Val
 35 40 45
 Asn Arg Ala Asp Lys Val Asp Leu Pro Thr Leu Gln Ser Trp Leu Gly
 50 55 60
 Gln Leu Ile Glu Gly Lys Gln Glu Ile Asp Phe Pro Trp Tyr Pro Ala
 65 70 75 80
 Arg Val Val Cys His Asp Ile Leu Gly Gln Thr Ala Leu Val Asp Leu
 85 90 95
 Ala Gly Leu Arg Asp Ala Ile Ala Glu Lys Gly Gly Asp Pro Ala Lys

100					105					110					
Val	Asn	Pro	Val	Val	Ala	Lys	Pro	Ser	Phe	Ile	Val	Asp	His	Ser	Leu
		115					120					125			
Ala	Val	Glu	Cys	Gly	Gly	Tyr	Asp	Pro	Asp	Ala	Phe	Arg	Lys	Asn	Arg
	130					135					140				
Gln	Ile	Glu	Asp	Arg	Arg	Asn	Glu	Asp	Arg	Phe	His	Phe	Ile	Asn	Trp
145					150					155					160
Thr	Lys	Thr	Ala	Phe	Glu	Asn	Val	Asp	Val	Ile	Pro	Ala	Gly	Asn	Gly
				165					170					175	
Ile	Met	His	Gln	Ile	Asn	Leu	Glu	Lys	Met	Ser	Pro	Val	Val	Gln	Val
			180					185					190		
Lys	Asn	Gly	Val	Ala	Phe	Pro	Asp	Thr	Cys	Val	Gly	Thr	Asp	Ser	His
		195					200					205			
Thr	Pro	His	Val	Asp	Ala	Leu	Gly	Val	Ile	Ser	Val	Gly	Val	Gly	Gly
	210					215					220				
Leu	Glu	Ala	Glu	Thr	Val	Met	Leu	Gly	Arg	Ala	Ser	Met	Met	Arg	Leu
225					230					235					240
Pro	Asp	Ile	Val	Gly	Val	Glu	Leu	Asn	Gly	Lys	Arg	Gln	Ala	Gly	Ile
			245						250					255	
Thr	Ala	Thr	Asp	Ile	Val	Leu	Ala	Leu	Thr	Glu	Phe	Leu	Arg	Lys	Glu
			260					265					270		
Arg	Val	Val	Gly	Ala	Phe	Val	Glu	Phe	Phe	Gly	Glu	Gly	Ala	Arg	Ser
		275					280					285			
Leu	Ser	Ile	Gly	Asp	Arg	Ala	Thr	Ile	Ser	Asn	Met	Thr	Pro	Glu	Phe
	290					295					300				
Gly	Ala	Thr	Ala	Ala	Met	Phe	Ala	Ile	Asp	Glu	Gln	Thr	Ile	Asp	Tyr
305					310					315					320
Leu	Lys	Leu	Thr	Gly	Arg	Asp	Asp	Ala	Gln	Val	Lys	Leu	Val	Glu	Thr
				325					330					335	
Tyr	Ala	Lys	Thr	Ala	Gly	Leu	Trp	Ala	Asp	Ala	Leu	Lys	Thr	Ala	Val
			340					345					350		
Tyr	Pro	Arg	Val	Leu	Lys	Phe	Asp	Leu	Ser	Ser	Val	Thr	Arg	Asn	Met
		355					360					365			
Ala	Gly	Pro	Ser	Asn	Pro	His	Ala	Arg	Phe	Ala	Thr	Ala	Asp	Leu	Ala
	370					375					380				
Ser	Lys	Gly	Leu	Ala	Lys	Pro	Tyr	Glu	Glu	Pro	Ser	Asp	Gly	Gln	Met
385					390					395					400
Pro	Asp	Gly	Ala	Val	Ile	Ile	Ala	Ala	Ile	Thr	Ser	Cys	Thr	Asn	Thr

405						410						415					
Ser	Asn	Pro	Arg	Asn	Val	Val	Ala	Ala	Ala	Leu	Leu	Ala	Arg	Asn	Ala		
			420					425						430			
Asn	Cys	Phe	Gly	Leu	Lys	Arg	Lys	Pro	Trp	Val	Lys	Thr	Ser	Phe	Ala		
		435					440						445				
Pro	Gly	Ser	Lys	Val	Ala	Glu	Ile	Tyr	Leu	Lys	Glu	Ala	Gly	Leu	Leu		
	450						455						460				
Pro	Glu	Met	Glu	Lys	Leu	Gly	Phe	Gly	Ile	Val	Ala	Phe	Ala	Cys	Thr		
465					470					475					480		
Thr	Cys	Asn	Gly	Met	Ser	Gly	Ala	Leu	Asp	Pro	Lys	Ile	Gln	Lys	Glu		
				485					490					495			
Ile	Ile	Asp	Arg	Asp	Leu	Tyr	Ala	Thr	Ala	Val	Leu	Ser	Gly	Asn	Arg		
			500					505					510				
Asn	Phe	Asp	Gly	Arg	Val	His	Pro	Tyr	Ala	Lys	Gln	Ala	Phe	Leu	Ala		
		515					520						525				
Ser	Pro	Pro	Leu	Val	Val	Ala	Tyr	Ala	Leu	Ala	Gly	Ser	Ile	Arg	Phe		
	530						535				540						
Asp	Ile	Glu	Asn	Asp	Val	Leu	Gly	Val	Ala	Asp	Gly	Lys	Glu	Ile	Arg		
545					550					555					560		
Leu	Lys	Asp	Ile	Trp	Pro	Ala	Asp	Glu	Glu	Ile	Asp	Ala	Val	Val	Ala		
				565					570					575			
Glu	Tyr	Val	Lys	Pro	Gln	Gln	Phe	Arg	Asp	Val	Tyr	Val	Pro	Met	Phe		
			580					585					590				
Asp	Thr	Gly	Thr	Ala	Gln	Lys	Ala	Pro	Ser	Pro	Leu	Tyr	Asp	Trp	Arg		
		595					600						605				
Pro	Met	Ser	Thr	Tyr	Ile	Arg	Arg	Pro	Pro	Tyr	Trp	Glu	Gly	Ala	Leu		
	610						615				620						
Ala	Gly	Glu	Arg	Thr	Leu	Arg	Gly	Met	Arg	Pro	Leu	Ala	Ile	Leu	Pro		
625					630					635				640			
Asp	Asn	Ile	Thr	Thr	Asp	His	Leu	Ser	Pro	Ser	Asn	Ala	Ile	Leu	Ala		
				645					650				655				
Val	Ser	Ala	Ala	Gly	Glu	Tyr	Leu	Ala	Lys	Met	Gly	Leu	Pro	Glu	Glu		
			660					665					670				
Asp	Phe	Asn	Ser	Tyr	Ala	Thr	His	Arg	Gly	Asp	His	Leu	Thr	Ala	Gln		
		675					680						685				
Arg	Ala	Thr	Phe	Ala	Asn	Pro	Lys	Leu	Phe	Asn	Glu	Met	Val	Lys	Asn		
	690						695				700						
Glu	Asp	Gly	Ser	Val	Arg	Gln	Gly	Ser	Phe	Ala	Arg	Val	Glu	Pro	Glu		

705		710		715		720
Gly Glu Thr Met Arg Met Trp Glu Ala Ile Glu Thr Tyr Met Asn Arg						
	725			730		735
Lys Gln Pro Leu Ile Ile Ile Ala Gly Ala Asp Tyr Gly Gln Gly Ser						
	740			745		750
Ser Arg Asp Trp Ala Ala Lys Gly Val Arg Leu Ala Gly Val Glu Ala						
	755			760		765
Ile Val Ala Glu Gly Phe Glu Arg Ile His Arg Thr Asn Leu Ile Gly						
	770			775		780
Met Gly Val Leu Pro Leu Gln Phe Lys Pro Asp Thr Asn Arg His Thr						
	785			790		795
Leu Gln Leu Asp Gly Thr Glu Thr Tyr Asp Val Val Gly Glu Arg Thr						
	805			810		815
Pro Arg Cys Asp Leu Thr Leu Val Ile His Arg Lys Asn Gly Glu Thr						
	820			825		830
Val Glu Val Pro Val Thr Cys Arg Leu Asp Thr Ala Glu Glu Val Leu						
	835			840		845
Val Tyr Glu Ala Gly Gly Val Leu Gln Arg Phe Ala Gln Asp Phe Leu						
	850			855		860
Glu Gly Asn Ala Ala						
865						

<210> 43
 <211> 1170
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> CDS
 <222> (1)..(1167)

<400> 43	
atg ccg caa att aaa att ccc gcc gtt tac tac cgt ggc ggt aca tca	48
Met Pro Gln Ile Lys Ile Pro Ala Val Tyr Tyr Arg Gly Gly Thr Ser	
1 5 10 15	
aaa ggc gtg ttt ttc aaa cgt tcc gac ctg ccc gag gcg gcg cgg gaa	96
Lys Gly Val Phe Phe Lys Arg Ser Asp Leu Pro Glu Ala Ala Arg Glu	
20 25 30	
gcg gga agc gca cgc gac aaa atc ctc ttg cgc gta ctc ggc agc ccg	144
Ala Gly Ser Ala Arg Asp Lys Ile Leu Leu Arg Val Leu Gly Ser Pro	
35 40 45	
gac ccc tac ggc aag cag ata gac ggt ttg ggc aac gcc agt tcg tcc	192

Asp	Pro	Tyr	Gly	Lys	Gln	Ile	Asp	Gly	Leu	Gly	Asn	Ala	Ser	Ser	Ser		
	50					55					60						
acc	agc	aaa	gcc	gtg	att	ttg	gac	aag	tcc	gaa	cgc	acc	gat	cac	gat	240	
Thr	Ser	Lys	Ala	Val	Ile	Leu	Asp	Lys	Ser	Glu	Arg	Thr	Asp	His	Asp	80	
	65				70					75							
gtc	gat	tac	ctt	ttc	ggg	caa	gtt	tcc	atc	gac	aaa	cct	ttt	gtc	gat	288	
Val	Asp	Tyr	Leu	Phe	Gly	Gln	Val	Ser	Ile	Asp	Lys	Pro	Phe	Val	Asp	95	
				85					90								
tgg	agt	ggc	aac	tgc	ggc	aac	ctc	acc	gcc	gcc	gtg	ggc	gca	ttt	gcc	336	
Trp	Ser	Gly	Asn	Cys	Gly	Asn	Leu	Thr	Ala	Ala	Val	Gly	Ala	Phe	Ala	110	
			100					105									
atc	gag	caa	ggc	ttg	gtc	gat	aaa	tcc	aaa	atc	cct	tca	gac	ggc	ccg	384	
Ile	Glu	Gln	Gly	Leu	Val	Asp	Lys	Ser	Lys	Ile	Pro	Ser	Asp	Gly	Pro	125	
		115					120					125					
tgt	acc	gtc	aaa	atc	tgg	cag	aaa	aac	atc	ggc	aaa	acc	att	att	gcc	432	
Cys	Thr	Val	Lys	Ile	Trp	Gln	Lys	Asn	Ile	Gly	Lys	Thr	Ile	Ile	Ala	140	
	130					135											
cat	gta	ccg	atg	caa	aac	ggc	gca	gtt	ttg	gaa	aca	ggc	gat	ttt	gag	480	
His	Val	Pro	Met	Gln	Asn	Gly	Ala	Val	Leu	Glu	Thr	Gly	Asp	Phe	Glu	160	
	145				150					155							
ctc	gac	ggc	gta	acg	ttc	ccg	gca	gcc	gaa	gta	caa	atc	gaa	ttt	ctt	528	
Leu	Asp	Gly	Val	Thr	Phe	Pro	Ala	Ala	Glu	Val	Gln	Ile	Glu	Phe	Leu	175	
				165					170								
gat	cca	gcc	gac	ggc	gaa	ggc	agt	atg	ttc	cca	acc	ggc	aat	ttg	gtc	576	
Asp	Pro	Ala	Asp	Gly	Glu	Gly	Ser	Met	Phe	Pro	Thr	Gly	Asn	Leu	Val	190	
			180					185									
gat	gaa	att	gat	gtg	ccg	aat	ata	ggc	cgt	ttg	aaa	gcc	acg	ctc	atc	624	
Asp	Glu	Ile	Asp	Val	Pro	Asn	Ile	Gly	Arg	Leu	Lys	Ala	Thr	Leu	Ile	205	
		195					200										
aac	gcg	ggc	att	ccg	acc	gtt	ttc	ctg	aat	gcc	gcc	gac	ttg	ggc	tac	672	
Asn	Ala	Gly	Ile	Pro	Thr	Val	Phe	Leu	Asn	Ala	Ala	Asp	Leu	Gly	Tyr	220	
			210				215										
acg	ggc	aaa	gag	ttg	caa	gac	gac	atc	aac	aac	gat	gcc	gca	gct	ttg	720	
Thr	Gly	Lys	Glu	Leu	Gln	Asp	Asp	Ile	Asn	Asn	Asp	Ala	Ala	Ala	Leu	240	
				225		230				235							
gaa	aaa	ttc	gag	aaa	atc	cgc	gct	tac	ggg	gcg	ctg	aaa	atg	ggg	cta	768	
Glu	Lys	Phe	Glu	Lys	Ile	Arg	Ala	Tyr	Gly	Ala	Leu	Lys	Met	Gly	Leu	255	
				245					250								
atc	agc	gac	gta	tcc	gaa	gct	gcc	gcc	cgc	gcg	cac	acg	ccg	aaa	gtc	816	
Ile	Ser	Asp	Val	Ser	Glu	Ala	Ala	Ala	Arg	Ala	His	Thr	Pro	Lys	Val	270	
			260					265									
gcc	ttc	gtc	gcg	ccc	gcc	gcc	gat	tac	acc	gcc	tcc	agt	ggc	aaa	acc	864	
Ala	Phe	Val	Ala	Pro	Ala	Ala	Asp	Tyr	Thr	Ala	Ser	Ser	Gly	Lys	Thr		

275	280	285	
gtg aat gcc gcc gac atc gat ttg ctg gta cgc gcc ctg agc atg ggc			912
Val Asn Ala Ala Asp Ile Asp Leu Leu Val Arg Ala Leu Ser Met Gly			
290	295	300	
aaa ttg cac cac gcg atg atg ggt acc gcc tct gtt gcc att gcg acc			960
Lys Leu His His Ala Met Met Gly Thr Ala Ser Val Ala Ile Ala Thr			
305	310	315	320
gcc gcc gcc gtg ccc ggt acg ctg gtc aac ctt gcc gca ggg gcg gga			1008
Ala Ala Ala Val Pro Gly Thr Leu Val Asn Leu Ala Ala Gly Ala Gly			
	325	330	335
acg cgt aaa gaa gtg cgc ttc ggg cat cct tcc gcc aca ttg cgc gtc			1056
Thr Arg Lys Glu Val Arg Phe Gly His Pro Ser Gly Thr Leu Arg Val			
	340	345	350
ggg gca gcc gcc gaa tgt cag gac gga caa tgg acg gcc acc aaa gcg			1104
Gly Ala Ala Ala Glu Cys Gln Asp Gly Gln Trp Thr Ala Thr Lys Ala			
	355	360	365
gtt atg agc cgc agc gca cgc gtg atg atg gaa ggt tgg gtc agg gtg			1152
Val Met Ser Arg Ser Ala Arg Val Met Met Glu Gly Trp Val Arg Val			
	370	375	380
ccg gaa gat tgt ttt taa			1170
Pro Glu Asp Cys Phe			
385			

<210> 44
 <211> 389
 <212> PRT
 <213> Neisseria meningitidis

<400> 44
 Met Pro Gln Ile Lys Ile Pro Ala Val Tyr Tyr Arg Gly Gly Thr Ser
 1 5 10 15
 Lys Gly Val Phe Phe Lys Arg Ser Asp Leu Pro Glu Ala Ala Arg Glu
 20 25 30
 Ala Gly Ser Ala Arg Asp Lys Ile Leu Leu Arg Val Leu Gly Ser Pro
 35 40 45
 Asp Pro Tyr Gly Lys Gln Ile Asp Gly Leu Gly Asn Ala Ser Ser Ser
 50 55 60
 Thr Ser Lys Ala Val Ile Leu Asp Lys Ser Glu Arg Thr Asp His Asp
 65 70 75 80
 Val Asp Tyr Leu Phe Gly Gln Val Ser Ile Asp Lys Pro Phe Val Asp
 85 90 95
 Trp Ser Gly Asn Cys Gly Asn Leu Thr Ala Ala Val Gly Ala Phe Ala
 100 105 110

[illegible]

<210> 45
<211> 954
<212> DNA
<213> Neisseria meningitidis

<220>
<221> CDS
<222> (1)..(951)

<400> 45

atg cgc acg ccg ttt tgt tgg gca tac gcc aat gcc gcc cga ata tcg	48
Met Arg Thr Pro Phe Cys Trp Ala Tyr Ala Asn Ala Ala Arg Ile Ser	
1 5 10 15	
gca atg ctg ccg gcg tgt tgg gcg cag gcg atg ttg gcc gaa gta atc	96
Ala Met Leu Pro Ala Cys Trp Ala Gln Ala Met Leu Ala Glu Val Ile	
20 25 30	
agc tgc aac aag gct tcg tcg ctg ccg cag cct tcg gcg aga tcg gcg	144
Ser Cys Asn Lys Ala Ser Ser Leu Pro Gln Pro Ser Ala Arg Ser Ala	
35 40 45	
ttt aaa tca acc tgc ttc atg ggt gat tct ccg tat ttg gtt cag ata	192
Phe Lys Ser Thr Cys Phe Met Gly Asp Ser Pro Tyr Leu Val Gln Ile	
50 55 60	
gac ttg gtt ttt gcg ccg cag ggc ggt ggc ttc ttt caa gcc gat tat	240
Asp Leu Val Phe Ala Pro Gln Gly Gly Gly Phe Phe Gln Ala Asp Tyr	
65 70 75 80	
ttt gaa ttt gac ttt gct gcc gaa gcg cac ctg tgc cag cct gcc caa	288
Phe Glu Phe Asp Phe Ala Ala Glu Ala His Leu Cys Gln Pro Ala Gln	
85 90 95	
atc ggc ggc ggc aac ggt agc gat ttt cgg ata acc gcc ggt ggt ttg	336
Ile Gly Gly Gly Asn Gly Ser Asp Phe Arg Ile Thr Ala Gly Gly Leu	
100 105 110	
cgc atc ggc cag cag gat aat cgg ttt gcc gcc ggg cgg cac ctg cac	384
Arg Ile Gly Gln Gln Asp Asn Arg Phe Ala Ala Gly Arg His Leu His	
115 120 125	
ggt tcc tgc ctg aac agc gtg gga cag cat ttc caa agg ttg cga cag	432
Gly Ser Cys Leu Asn Ser Val Gly Gln His Phe Gln Arg Leu Arg Gln	
130 135 140	
ggt cag cgg ctg tcc gtc gaa gcg gta gcc cat gcg gtt gct atc gct	480
Gly Gln Arg Leu Ser Val Glu Ala Val Ala His Ala Val Ala Ile Ala	
145 150 155 160	
ttg cag cgt cca cgt ttc ccg ttc cag att cag acg ccc ttt ttc act	528
Leu Gln Arg Pro Arg Phe Pro Phe Gln Ile Gln Thr Pro Phe Phe Thr	
165 170 175	
gaa agc ggc ata ttc cga cga agg aac aag gtg gat ggt atc ggt aaa	576
Glu Ser Gly Ile Phe Arg Arg Arg Asn Lys Val Asp Gly Ile Gly Lys	
180 185 190	

Ile Gly Gly Gly Asn Gly Ser Asp Phe Arg Ile Thr Ala Gly Gly Leu
 100 105 110
 Arg Ile Gly Gln Gln Asp Asn Arg Phe Ala Ala Gly Arg His Leu His
 115 120 125
 Gly Ser Cys Leu Asn Ser Val Gly Gln His Phe Gln Arg Leu Arg Gln
 130 135 140
 Gly Gln Arg Leu Ser Val Glu Ala Val Ala His Ala Val Ala Ile Ala
 145 150 155 160
 Leu Gln Arg Pro Arg Phe Pro Phe Gln Ile Gln Thr Pro Phe Phe Thr
 165 170 175
 Glu Ser Gly Ile Phe Arg Arg Arg Asn Lys Val Asp Gly Ile Gly Lys
 180 185 190
 Arg Tyr Arg Gly Asn Ala Asp Phe Gly Gln Phe Leu Arg Thr Phe Ala
 195 200 205
 Asp Gly Glu Ile Ile Ala Phe Leu Gln His Ser Ala Leu Met Ala Ala
 210 215 220
 Glu Thr Gly Phe Gln Val Gly Ala Ser Arg Thr His His Phe Arg His
 225 230 235 240
 Ile Lys Ser Ala Arg His Ala His Ile Ala Val His Ala Leu His Gly
 245 250 255
 Thr His His Phe Gln Gly Leu Pro Phe Ala Gly Gly Ile Thr Pro Ile
 260 265 270
 Arg Ile Asp Arg Phe Ala Val Gln Phe Arg Leu Ile His Gly Thr Gly
 275 280 285
 Glu Thr Lys Arg Arg Ile Pro Phe Lys His Gln His Tyr Pro Ala Gln
 290 295 300
 Ser Asp Phe Asp Cys Gly Arg Ala Phe Val Val Ala Gln
 305 310 315

<210> 47
 <211> 648
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> CDS
 <222> (1)..(645)

<400> 47
 atg aga ata gag atc aca cca atc agc gaa tcc gct ttg gtc tgc cga 48
 Met Arg Ile Glu Ile Thr Pro Ile Ser Glu Ser Ala Leu Val Cys Arg

1	5	10	15	
ctg aat gcg cct tcc gaa ctg ggc aaa cag caa aag ttg tgg gcg ttt				96
Leu Asn Ala Pro Ser Glu Leu Gly Lys Gln Gln Lys Leu Trp Ala Phe				
20		25	30	
gcc gct gcg ctc ggg cag cac gac agg att gag gaa gtg gtg gtc ggc				144
Ala Ala Ala Leu Gly Gln His Asp Arg Ile Glu Glu Val Val Val Gly				
35		40	45	
atg aac aat ctg acc gtg ttc acc cgt ttc gat acc gat ttg gcg acg				192
Met Asn Asn Leu Thr Val Phe Thr Arg Phe Asp Thr Asp Leu Ala Thr				
50		55	60	
ctt gcc gat gaa ttg caa tat gtg tgg gaa cac acc gcc gtt aca gac				240
Leu Ala Asp Glu Leu Gln Tyr Val Trp Glu His Thr Ala Val Thr Asp				
65		70	75	80
cat cag ggc aaa ctg gtg gaa att ccc gtc tgc tac ggc ggc gaa tac				288
His Gln Gly Lys Leu Val Glu Ile Pro Val Cys Tyr Gly Gly Glu Tyr				
85		90	95	
ggc ccg gat ttg gcg gaa gtc gct gct ttc cat cag acg gtt att tcc				336
Gly Pro Asp Leu Ala Glu Val Ala Ala Phe His Gln Thr Val Ile Ser				
100		105	110	
gaa atc gtc cgc cgc cat acg gcg caa act tat acc gta ttt atg atg				384
Glu Ile Val Arg Arg His Thr Ala Gln Thr Tyr Thr Val Phe Met Met				
115		120	125	
ggc ttc cag cct ggt ttc cct tat ctg ggc ggc ttg ccc gaa gca ttg				432
Gly Phe Gln Pro Gly Phe Pro Tyr Leu Gly Gly Leu Pro Glu Ala Leu				
130		135	140	
cac acg ccc cgc cgt gcc gtg ccg aga acg tcc gtt cct gcc ggt tcg				480
His Thr Pro Arg Arg Ala Val Pro Arg Thr Ser Val Pro Ala Gly Ser				
145		150	155	160
gtc ggt atc ggc ggc agt cag acc ggt gtg tat ccg ttc gct tcg ccc				528
Val Gly Ile Gly Gly Ser Gln Thr Gly Val Tyr Pro Phe Ala Ser Pro				
165		170	175	
ggc ggc tgg cag att atc ggc aga acc gaa tta ccc ttg ttc cga gcc				576
Gly Gly Trp Gln Ile Ile Gly Arg Thr Glu Leu Pro Leu Phe Arg Ala				
180		185	190	
gat ttg aat ccg ccg acc ctg ctg gcg gcg ggt gac caa gtc cgc ttt				624
Asp Leu Asn Pro Pro Thr Leu Leu Ala Ala Gly Asp Gln Val Arg Phe				
195		200	205	
gtt gca gaa agg att gag cca tga				648
Val Ala Glu Arg Ile Glu Pro				
210		215		

<210> 48

<211> 215

<212> PRT
<213> Neisseria meningitidis

<400> 48

Met	Arg	Ile	Glu	Ile	Thr	Pro	Ile	Ser	Glu	Ser	Ala	Leu	Val	Cys	Arg	
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Leu	Asn	Ala	Pro	Ser	Glu	Leu	Gly	Lys	Gln	Gln	Lys	Leu	Trp	Ala	Phe	
			20					25					30			
Ala	Ala	Ala	Leu	Gly	Gln	His	Asp	Arg	Ile	Glu	Glu	Val	Val	Val	Gly	
			35				40					45				
Met	Asn	Asn	Leu	Thr	Val	Phe	Thr	Arg	Phe	Asp	Thr	Asp	Leu	Ala	Thr	
	50					55					60					
Leu	Ala	Asp	Glu	Leu	Gln	Tyr	Val	Trp	Glu	His	Thr	Ala	Val	Thr	Asp	
65					70					75					80	
His	Gln	Gly	Lys	Leu	Val	Glu	Ile	Pro	Val	Cys	Tyr	Gly	Gly	Glu	Tyr	
			85						90					95		
Gly	Pro	Asp	Leu	Ala	Glu	Val	Ala	Ala	Phe	His	Gln	Thr	Val	Ile	Ser	
			100					105						110		
Glu	Ile	Val	Arg	Arg	His	Thr	Ala	Gln	Thr	Tyr	Thr	Val	Phe	Met	Met	
		115					120					125				
Gly	Phe	Gln	Pro	Gly	Phe	Pro	Tyr	Leu	Gly	Gly	Leu	Pro	Glu	Ala	Leu	
	130					135					140					
His	Thr	Pro	Arg	Arg	Ala	Val	Pro	Arg	Thr	Ser	Val	Pro	Ala	Gly	Ser	
145					150					155					160	
Val	Gly	Ile	Gly	Gly	Ser	Gln	Thr	Gly	Val	Tyr	Pro	Phe	Ala	Ser	Pro	
			165						170					175		
Gly	Gly	Trp	Gln	Ile	Ile	Gly	Arg	Thr	Glu	Leu	Pro	Leu	Phe	Arg	Ala	
			180					185					190			
Asp	Leu	Asn	Pro	Pro	Thr	Leu	Leu	Ala	Ala	Gly	Asp	Gln	Val	Arg	Phe	
		195					200					205				
Val	Ala	Glu	Arg	Ile	Glu	Pro										
	210					215										

<210> 49
<211> 930
<212> DNA
<213> Neisseria meningitidis

<220>
<221> CDS
<222> (1)..(927)

<400> 49

atg att cac gtt tcg gca gtg cag gca ccg gcg cat att cag gat acc	48
Met Ile His Val Ser Ala Val Gln Ala Pro Ala His Ile Gln Asp Thr	
1 5 10 15	
gga cgc tac gga cac cgg cgt tac ggc atc ggt cat gcc ggt gcg atg	96
Gly Arg Tyr Gly His Arg Arg Tyr Gly Ile Gly His Ala Gly Ala Met	
20 25 30	
gac acg gtt gct ttg gcg gcg ggt aat att tta ttg ggc aac gac gaa	144
Asp Thr Val Ala Leu Ala Ala Gly Asn Ile Leu Leu Gly Asn Asp Glu	
35 40 45	
ggc acg gcc gca atc gaa atc gct ttg ggc ggg ata atg ctg gtg ttt	192
Gly Thr Ala Ala Ile Glu Ile Ala Leu Gly Gly Ile Met Leu Val Phe	
50 55 60	
gaa cgg gat acg ccg ttt tgt ctc acc ggt gcc gtg tat cag gcg gaa	240
Glu Arg Asp Thr Pro Phe Cys Leu Thr Gly Ala Val Tyr Gln Ala Glu	
65 70 75 80	
ttg gac ggc gaa ccg gtc tat tcg tat tgg cgt tat acc gcc cgc aaa	288
Leu Asp Gly Glu Pro Val Tyr Ser Tyr Trp Arg Tyr Thr Ala Arg Lys	
85 90 95	
ggg cag acc ttg aaa atg gtg cgt gcc gtg cag ggc atg tac ggc tat	336
Gly Gln Thr Leu Lys Met Val Arg Ala Val Gln Gly Met Tyr Gly Tyr	
100 105 110	
gtg tgc gtg gcg ggc gga ttt gat gtg ccg gaa gtg atg ggt tcg aga	384
Val Cys Val Ala Gly Gly Phe Asp Val Pro Glu Val Met Gly Ser Arg	
115 120 125	
agc acc gac ctg aaa gcc ggt ttc ggc ggc cat cag ggc aga atg ctg	432
Ser Thr Asp Leu Lys Ala Gly Phe Gly Gly His Gln Gly Arg Met Leu	
130 135 140	
caa aaa ggc gat tat ctc ccc atc ggc aaa ggt gcg cag gaa ttg tcc	480
Gln Lys Gly Asp Tyr Leu Pro Ile Gly Lys Gly Ala Gln Glu Leu Ser	
145 150 155 160	
aaa gtc ggc att gcc ccg ata ccg ttt acc gat acc atc cac ctt gtt	528
Lys Val Gly Ile Ala Pro Ile Pro Phe Thr Asp Thr Ile His Leu Val	
165 170 175	
cct tcg tcg gaa tat gcc gct ttc agt gaa aaa ggg cgt ctg aat ctg	576
Pro Ser Ser Glu Tyr Ala Ala Phe Ser Glu Lys Gly Arg Leu Asn Leu	
180 185 190	
gaa cgg gaa acg tgg acg ctg caa agc gat agc aac cgc atg ggc tac	624
Glu Arg Glu Thr Trp Thr Leu Gln Ser Asp Ser Asn Arg Met Gly Tyr	
195 200 205	
cgc ttc gac gga cag ccg ctg acc ctg tcg caa cct ttg gaa atg ctg	672
Arg Phe Asp Gly Gln Pro Leu Thr Leu Ser Gln Pro Leu Glu Met Leu	
210 215 220	

tcc cac gct gtt cag gca gga acc gtg cag gtg ccg ccc ggc ggc aaa	720
Ser His Ala Val Gln Ala Gly Thr Val Gln Val Pro Pro Gly Gly Lys	
225 230 235 240	
ccg att atc ctg ctg gcc gat gcg caa acc acc ggc ggt tat ccg aaa	768
Pro Ile Ile Leu Leu Ala Asp Ala Gln Thr Thr Gly Gly Tyr Pro Lys	
245 250 255	
atc gct acc gtt gcc gcc gcc gat ttg ggc agg ctg gca cag gtg cgc	816
Ile Ala Thr Val Ala Ala Ala Asp Leu Gly Arg Leu Ala Gln Val Arg	
260 265 270	
ttc ggc agc aaa gtc aaa ttc aaa ata atc ggc ttg aaa gaa gcc acc	864
Phe Gly Ser Lys Val Lys Phe Lys Ile Ile Gly Leu Lys Glu Ala Thr	
275 280 285	
gcc ctg cgg cgc aaa aac caa gtc tat ctg aac caa ata cgg aga atc	912
Ala Leu Arg Arg Lys Asn Gln Val Tyr Leu Asn Gln Ile Arg Arg Ile	
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acc cat gaa gca ggt tga	930
Thr His Glu Ala Gly	
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 <213> Neisseria meningitidis

<400> 50
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Asp Thr Val Ala Leu Ala Ala Gly Asn Ile Leu Leu Gly Asn Asp Glu
35 40 45
Gly Thr Ala Ala Ile Glu Ile Ala Leu Gly Gly Ile Met Leu Val Phe
50 55 60
Glu Arg Asp Thr Pro Phe Cys Leu Thr Gly Ala Val Tyr Gln Ala Glu
65 70 75 80
Leu Asp Gly Glu Pro Val Tyr Ser Tyr Trp Arg Tyr Thr Ala Arg Lys
85 90 95
Gly Gln Thr Leu Lys Met Val Arg Ala Val Gln Gly Met Tyr Gly Tyr
100 105 110
Val Cys Val Ala Gly Gly Phe Asp Val Pro Glu Val Met Gly Ser Arg
115 120 125
Ser Thr Asp Leu Lys Ala Gly Phe Gly Gly His Gln Gly Arg Met Leu
130 135 140

Gln Lys Gly Asp Tyr Leu Pro Ile Gly Lys Gly Ala Gln Glu Leu Ser
 145 150 155 160
 Lys Val Gly Ile Ala Pro Ile Pro Phe Thr Asp Thr Ile His Leu Val
 165 170 175
 Pro Ser Ser Glu Tyr Ala Ala Phe Ser Glu Lys Gly Arg Leu Asn Leu
 180 185 190
 Glu Arg Glu Thr Trp Thr Leu Gln Ser Asp Ser Asn Arg Met Gly Tyr
 195 200 205
 Arg Phe Asp Gly Gln Pro Leu Thr Leu Ser Gln Pro Leu Glu Met Leu
 210 215 220
 Ser His Ala Val Gln Ala Gly Thr Val Gln Val Pro Pro Gly Gly Lys
 225 230 235 240
 Pro Ile Ile Leu Leu Ala Asp Ala Gln Thr Thr Gly Gly Tyr Pro Lys
 245 250 255
 Ile Ala Thr Val Ala Ala Ala Asp Leu Gly Arg Leu Ala Gln Val Arg
 260 265 270
 Phe Gly Ser Lys Val Lys Phe Lys Ile Ile Gly Leu Lys Glu Ala Thr
 275 280 285
 Ala Leu Arg Arg Lys Asn Gln Val Tyr Leu Asn Gln Ile Arg Arg Ile
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 Thr His Glu Ala Gly
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<220>
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 ttc gcc tct gga ttc tgc gcc ctg att tac cag gtc agc tgg cag agg 96
 Phe Ala Ser Gly Phe Cys Ala Leu Ile Tyr Gln Val Ser Trp Gln Arg
 20 25 30
 ctt cta ttc agt cac ata ggt atc gat ttg agt tcg att act gtc att 144
 Leu Leu Phe Ser His Ile Gly Ile Asp Leu Ser Ser Ile Thr Val Ile
 35 40 45

att tct gta ttt atg gtc ggc ttg ggt gta ggt gcg tat ttc ggt gga	192
Ile Ser Val Phe Met Val Gly Leu Gly Val Gly Ala Tyr Phe Gly Gly	
50 55 60	
cgc att gct gac cgt ttt cct tca agt atc atc ccc ctg ttt tgc atc	240
Arg Ile Ala Asp Arg Phe Pro Ser Ser Ile Ile Pro Leu Phe Cys Ile	
65 70 75 80	
gct gaa gta tcc atc ggt ctg ttc ggt ttg gta agc agg ggt ctg att	288
Ala Glu Val Ser Ile Gly Leu Phe Gly Leu Val Ser Arg Gly Leu Ile	
85 90 95	
tcc ggc ttg ggg cat ctt tta gtt gag gct gat ttg ccc atc atc gct	336
Ser Gly Leu Gly His Leu Leu Val Glu Ala Asp Leu Pro Ile Ile Ala	
100 105 110	
gct gcc aat ttc ctc tta ttg ctg ctt cct acc ttt atg atg ggc gcg	384
Ala Ala Asn Phe Leu Leu Leu Leu Leu Pro Thr Phe Met Met Gly Ala	
115 120 125	
acc ttg ccc ttg ctg acc tgt ttt ttt aac cgg aaa ata cat aat gtt	432
Thr Leu Pro Leu Leu Thr Cys Phe Phe Asn Arg Lys Ile His Asn Val	
130 135 140	
ggc gag tct atc ggt acc tta tat ttt ttc aac act ttg ggt gcg gca	480
Gly Glu Ser Ile Gly Thr Leu Tyr Phe Phe Asn Thr Leu Gly Ala Ala	
145 150 155 160	
ctc gga tcg ctt gcc gcc gcc gaa ttt ttc tac gtc ttt ttt acc ctc	528
Leu Gly Ser Leu Ala Ala Ala Glu Phe Phe Tyr Val Phe Phe Thr Leu	
165 170 175	
tcc caa acc att gcg ctg aca gcc tgc ttt aac ctt ctg att gct gct	576
Ser Gln Thr Ile Ala Leu Thr Ala Cys Phe Asn Leu Leu Ile Ala Ala	
180 185 190	
tca gta tgc tgc gtt aca gaa agg atg gat ata gtg aac act aaa ccg	624
Ser Val Cys Cys Val Thr Glu Arg Met Asp Ile Val Asn Thr Lys Pro	
195 200 205	
aat act agt ttg att tat atg ctt tct ttc ctt agc ggc tta ttg agc	672
Asn Thr Ser Leu Ile Tyr Met Leu Ser Phe Leu Ser Gly Leu Leu Ser	
210 215 220	
ttg ggt ata gaa gtc ttg tgg gta agg atg ttt tcg ttc gca gca cag	720
Leu Gly Ile Glu Val Leu Trp Val Arg Met Phe Ser Phe Ala Ala Gln	
225 230 235 240	
tcc gtg cct cag gca ttt tca ttt act ctt gcc tat ttt ctg acc ggt	768
Ser Val Pro Gln Ala Phe Ser Phe Thr Leu Ala Tyr Phe Leu Thr Gly	
245 250 255	
atc gcc gtc ggc gcg tat ttt ggc aaa cgg att tgc cgc agc cgc ttt	816
Ile Ala Val Gly Ala Tyr Phe Gly Lys Arg Ile Cys Arg Ser Arg Phe	
260 265 270	

gtt gat att ccc ttt atc ggg cag tgc ttc ttg tgg gcg ggt att gcc	864
Val Asp Ile Pro Phe Ile Gly Gln Cys Phe Leu Trp Ala Gly Ile Ala	
275 280 285	
gac ttt ttg att ttg ggt gct gcg tgg ttg ttg acg ggt ttt tcc ggc	912
Asp Phe Leu Ile Leu Gly Ala Ala Trp Leu Leu Thr Gly Phe Ser Gly	
290 295 300	
ttc gtc cac cac gcc ggt atc ttc att acc ctg tct gcc gtc gtc aga	960
Phe Val His His Ala Gly Ile Phe Ile Thr Leu Ser Ala Val Val Arg	
305 310 315 320	
ggg ttg att ttc ccg ctc gta cac cat gtg ggt acg gat ggc aac aaa	1008
Gly Leu Ile Phe Pro Leu Val His His Val Gly Thr Asp Gly Asn Lys	
325 330 335	
tcc gga cga cag gtt tcc aat gtt tat ttc gcc aac gtt gcc ggc agt	1056
Ser Gly Arg Gln Val Ser Asn Val Tyr Phe Ala Asn Val Ala Gly Ser	
340 345 350	
gca ttg ggt ccg gtc ctt atc ggc ttt gtg ata ctt gat ttc ttg tcc	1104
Ala Leu Gly Pro Val Leu Ile Gly Phe Val Ile Leu Asp Phe Leu Ser	
355 360 365	
acc caa cag att tac ctg ctc atc tgt ttg att tct gct gct gtc cct	1152
Thr Gln Gln Ile Tyr Leu Leu Ile Cys Leu Ile Ser Ala Ala Val Pro	
370 375 380	
ttg ttt tgt aca ctg ttc caa aaa agt ctc cga ctg aat gca gtg tcg	1200
Leu Phe Cys Thr Leu Phe Gln Lys Ser Leu Arg Leu Asn Ala Val Ser	
385 390 395 400	
gta gca gtt tcc cta atg ttc ggc atc ctc atg ttc cta ctg ccg gat	1248
Val Ala Val Ser Leu Met Phe Gly Ile Leu Met Phe Leu Leu Pro Asp	
405 410 415	
tct gtc ttt caa aat att gct gac cgt ccg gat cgg ctg att gaa aac	1296
Ser Val Phe Gln Asn Ile Ala Asp Arg Pro Asp Arg Leu Ile Glu Asn	
420 425 430	
aaa cac ggc att gtt gcg gtt tac cat aga gat ggt gat aag gtt gtt	1344
Lys His Gly Ile Val Ala Val Tyr His Arg Asp Gly Asp Lys Val Val	
435 440 445	
tat ggg gcg aat gta tac gac ggc gca tac aat acc gat gta ttc aat	1392
Tyr Gly Ala Asn Val Tyr Asp Gly Ala Tyr Asn Thr Asp Val Phe Asn	
450 455 460	
agt gtc aac ggc atc gaa cgt gcc tat ctg cta ccc tcc ctg aag tct	1440
Ser Val Asn Gly Ile Glu Arg Ala Tyr Leu Leu Pro Ser Leu Lys Ser	
465 470 475 480	
ggc ata cgc cgc att ttc gtc gtt gga ttg agt aca ggt tcg tgg gcg	1488
Gly Ile Arg Arg Ile Phe Val Val Gly Leu Ser Thr Gly Ser Trp Ala	
485 490 495	
cgc gtc ttg tct gcc att ccg gaa atg cag tcg atg atc gtt gcg gaa	1536

Arg	Val	Leu	Ser	Ala	Ile	Pro	Glu	Met	Gln	Ser	Met	Ile	Val	Ala	Glu		
			500					505					510				
atc	aat	ccg	gca	tac	cgt	agc	ctt	atc	gcg	gac	gag	ccg	caa	atc	gcc	1584	
Ile	Asn	Pro	Ala	Tyr	Arg	Ser	Leu	Ile	Ala	Asp	Glu	Pro	Gln	Ile	Ala		
		515					520					525					
ccg	ctt	ttg	cag	gac	aaa	cgt	gtt	gaa	att	gta	ttg	gat	gac	ggg	agg	1632	
Pro	Leu	Leu	Gln	Asp	Lys	Arg	Val	Glu	Ile	Val	Leu	Asp	Asp	Gly	Arg		
		530				535					540						
aaa	tgg	ctg	cgt	cgc	cat	cct	gat	gaa	aaa	ttc	gac	ctg	att	ttg	atg	1680	
Lys	Trp	Leu	Arg	Arg	His	Pro	Asp	Glu	Lys	Phe	Asp	Leu	Ile	Leu	Met		
545					550					555					560		
aat	acg	act	tgg	tac	tgg	cgt	gcc	tat	tcc	acc	aac	ctg	ttg	agt	gcg	1728	
Asn	Thr	Thr	Trp	Tyr	Trp	Arg	Ala	Tyr	Ser	Thr	Asn	Leu	Leu	Ser	Ala		
				565					570					575			
gaa	ttt	tta	aaa	cag	gtg	caa	agc	cac	ctt	acc	ccg	gat	ggg	att	gta	1776	
Glu	Phe	Leu	Lys	Gln	Val	Gln	Ser	His	Leu	Thr	Pro	Asp	Gly	Ile	Val		
			580					585					590				
atg	ttt	aat	acc	acg	cac	agc	ccg	cat	gct	ttt	gct	acc	gcc	gta	cac	1824	
Met	Phe	Asn	Thr	Thr	His	Ser	Pro	His	Ala	Phe	Ala	Thr	Ala	Val	His		
		595					600					605					
agt	att	ccc	tat	gca	tac	cgc	tat	ggg	cat	atg	gta	gtc	ggc	tcg	gca	1872	
Ser	Ile	Pro	Tyr	Ala	Tyr	Arg	Tyr	Gly	His	Met	Val	Val	Gly	Ser	Ala		
	610					615					620						
acc	ccg	gta	gtt	ttc	cct	aat	aaa	gaa	ctg	ctc	aag	caa	cgt	ctc	tcc	1920	
Thr	Pro	Val	Val	Phe	Pro	Asn	Lys	Glu	Leu	Leu	Lys	Gln	Arg	Leu	Ser		
625					630				635					640			
cgg	ttg	att	tgg	ccg	gaa	agc	ggc	agg	cac	gta	ttt	gac	agc	agc	acc	1968	
Arg	Leu	Ile	Trp	Pro	Glu	Ser	Gly	Arg	His	Val	Phe	Asp	Ser	Ser	Thr		
				645				650					655				
gtg	gat	gct	gca	gca	caa	aag	gtt	gtc	tct	cgt	atg	ctg	att	cag	atg	2016	
Val	Asp	Ala	Ala	Ala	Gln	Lys	Val	Val	Ser	Arg	Met	Leu	Ile	Gln	Met		
			660				665						670				
acg	gaa	cct	tcg	gct	ggg	gcg	gaa	gtc	att	acc	gac	gat	aat	atg	att	2064	
Thr	Glu	Pro	Ser	Ala	Gly	Ala	Glu	Val	Ile	Thr	Asp	Asp	Asn	Met	Ile		
		675				680					685						
gta	gaa	tac	aaa	tac	ggc	aga	ggg	att	taa							2094	
Val	Glu	Tyr	Lys	Tyr	Gly	Arg	Gly	Ile									
		690				695											

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<211> 697

<212> PRT

<213> Neisseria meningitidis

<400> 52

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			20					25					30		
Leu	Leu	Phe	Ser	His	Ile	Gly	Ile	Asp	Leu	Ser	Ser	Ile	Thr	Val	Ile
		35					40					45			
Ile	Ser	Val	Phe	Met	Val	Gly	Leu	Gly	Val	Gly	Ala	Tyr	Phe	Gly	Gly
	50					55					60				
Arg	Ile	Ala	Asp	Arg	Phe	Pro	Ser	Ser	Ile	Ile	Pro	Leu	Phe	Cys	Ile
65					70					75					80
Ala	Glu	Val	Ser	Ile	Gly	Leu	Phe	Gly	Leu	Val	Ser	Arg	Gly	Leu	Ile
				85					90					95	
Ser	Gly	Leu	Gly	His	Leu	Leu	Val	Glu	Ala	Asp	Leu	Pro	Ile	Ile	Ala
			100					105					110		
Ala	Ala	Asn	Phe	Leu	Leu	Leu	Leu	Leu	Pro	Thr	Phe	Met	Met	Gly	Ala
		115					120					125			
Thr	Leu	Pro	Leu	Leu	Thr	Cys	Phe	Phe	Asn	Arg	Lys	Ile	His	Asn	Val
	130					135					140				
Gly	Glu	Ser	Ile	Gly	Thr	Leu	Tyr	Phe	Phe	Asn	Thr	Leu	Gly	Ala	Ala
145				150						155					160
Leu	Gly	Ser	Leu	Ala	Ala	Ala	Glu	Phe	Phe	Tyr	Val	Phe	Phe	Thr	Leu
			165					170						175	
Ser	Gln	Thr	Ile	Ala	Leu	Thr	Ala	Cys	Phe	Asn	Leu	Leu	Ile	Ala	Ala
			180					185					190		
Ser	Val	Cys	Cys	Val	Thr	Glu	Arg	Met	Asp	Ile	Val	Asn	Thr	Lys	Pro
		195					200					205			
Asn	Thr	Ser	Leu	Ile	Tyr	Met	Leu	Ser	Phe	Leu	Ser	Gly	Leu	Leu	Ser
	210					215					220				
Leu	Gly	Ile	Glu	Val	Leu	Trp	Val	Arg	Met	Phe	Ser	Phe	Ala	Ala	Gln
225					230					235					240
Ser	Val	Pro	Gln	Ala	Phe	Ser	Phe	Thr	Leu	Ala	Tyr	Phe	Leu	Thr	Gly
			245					250						255	
Ile	Ala	Val	Gly	Ala	Tyr	Phe	Gly	Lys	Arg	Ile	Cys	Arg	Ser	Arg	Phe
		260					265					270			
Val	Asp	Ile	Pro	Phe	Ile	Gly	Gln	Cys	Phe	Leu	Trp	Ala	Gly	Ile	Ala
	275						280					285			
Asp	Phe	Leu	Ile	Leu	Gly	Ala	Ala	Trp	Leu	Leu	Thr	Gly	Phe	Ser	Gly
	290					295					300				

Phe	Val	His	His	Ala	Gly	Ile	Phe	Ile	Thr	Leu	Ser	Ala	Val	Val	Arg	
305					310					315					320	
Gly	Leu	Ile	Phe	Pro	Leu	Val	His	His	Val	Gly	Thr	Asp	Gly	Asn	Lys	
				325					330					335		
Ser	Gly	Arg	Gln	Val	Ser	Asn	Val	Tyr	Phe	Ala	Asn	Val	Ala	Gly	Ser	
				340				345					350			
Ala	Leu	Gly	Pro	Val	Leu	Ile	Gly	Phe	Val	Ile	Leu	Asp	Phe	Leu	Ser	
		355					360					365				
Thr	Gln	Gln	Ile	Tyr	Leu	Leu	Ile	Cys	Leu	Ile	Ser	Ala	Ala	Val	Pro	
	370						375				380					
Leu	Phe	Cys	Thr	Leu	Phe	Gln	Lys	Ser	Leu	Arg	Leu	Asn	Ala	Val	Ser	
385					390					395					400	
Val	Ala	Val	Ser	Leu	Met	Phe	Gly	Ile	Leu	Met	Phe	Leu	Leu	Pro	Asp	
				405					410					415		
Ser	Val	Phe	Gln	Asn	Ile	Ala	Asp	Arg	Pro	Asp	Arg	Leu	Ile	Glu	Asn	
				420				425					430			
Lys	His	Gly	Ile	Val	Ala	Val	Tyr	His	Arg	Asp	Gly	Asp	Lys	Val	Val	
		435					440					445				
Tyr	Gly	Ala	Asn	Val	Tyr	Asp	Gly	Ala	Tyr	Asn	Thr	Asp	Val	Phe	Asn	
	450					455					460					
Ser	Val	Asn	Gly	Ile	Glu	Arg	Ala	Tyr	Leu	Leu	Pro	Ser	Leu	Lys	Ser	
465					470					475					480	
Gly	Ile	Arg	Arg	Ile	Phe	Val	Val	Gly	Leu	Ser	Thr	Gly	Ser	Trp	Ala	
				485					490					495		
Arg	Val	Leu	Ser	Ala	Ile	Pro	Glu	Met	Gln	Ser	Met	Ile	Val	Ala	Glu	
			500					505					510			
Ile	Asn	Pro	Ala	Tyr	Arg	Ser	Leu	Ile	Ala	Asp	Glu	Pro	Gln	Ile	Ala	
		515					520					525				
Pro	Leu	Leu	Gln	Asp	Lys	Arg	Val	Glu	Ile	Val	Leu	Asp	Asp	Gly	Arg	
		530				535					540					
Lys	Trp	Leu	Arg	Arg	His	Pro	Asp	Glu	Lys	Phe	Asp	Leu	Ile	Leu	Met	
545					550					555					560	
Asn	Thr	Thr	Trp	Tyr	Trp	Arg	Ala	Tyr	Ser	Thr	Asn	Leu	Leu	Ser	Ala	
				565					570					575		
Glu	Phe	Leu	Lys	Gln	Val	Gln	Ser	His	Leu	Thr	Pro	Asp	Gly	Ile	Val	
			580					585					590			
Met	Phe	Asn	Thr	Thr	His	Ser	Pro	His	Ala	Phe	Ala	Thr	Ala	Val	His	
		595					600					605				

Ser Ile Pro Tyr Ala Tyr Arg Tyr Gly His Met Val Val Gly Ser Ala
610 615 620

Thr Pro Val Val Phe Pro Asn Lys Glu Leu Leu Lys Gln Arg Leu Ser
625 630 635 640

Arg Leu Ile Trp Pro Glu Ser Gly Arg His Val Phe Asp Ser Ser Thr
645 650 655

Val Asp Ala Ala Ala Gln Lys Val Val Ser Arg Met Leu Ile Gln Met
660 665 670

Thr Glu Pro Ser Ala Gly Ala Glu Val Ile Thr Asp Asp Asn Met Ile
675 680 685

Val Glu Tyr Lys Tyr Gly Arg Gly Ile
690 695

<210> 53

<211> 1040

<212> PRT

<213> Neisseria meningitidis

<400> 53

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Ala Val Ser Tyr Ala Gly Ile Lys Asn Glu Met Cys Lys Asp Arg Ser
35 40 45

Met Leu Cys Ala Gly Arg Asp Asp Val Ala Val Thr Asp Arg Asp Ala
50 55 60

Lys Ile Asn Ala Pro Pro Pro Asn Leu His Thr Gly Asp Phe Thr Asn
65 70 75 80

Pro Asn Asp Ala Tyr Lys Asn Leu Ile Asn Leu Lys Pro Ala Ile Glu
85 90 95

Ala Gly Tyr Thr Gly Arg Gly Val Glu Val Gly Ile Val Asp Thr Gly
100 105 110

Glu Ser Val Gly Ser Ile Ser Phe Pro Glu Leu Tyr Gly Arg Lys Glu
115 120 125

His Gly Tyr Asn Glu Asn Tyr Lys Asn Tyr Thr Ala Tyr Met Arg Lys
130 135 140

Glu Ala Pro Glu Asp Gly Gly Gly Lys Asp Ile Lys Ala Ser Phe Asp
145 150 155 160

Asp	Glu	Ala	Val	Ile	Glu	Thr	Glu	Ala	Lys	Pro	Thr	Asp	Ile	Arg	His	
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Val	Lys	Glu	Ile	Gly	His	Ile	Asp	Val	Val	Ser	His	Ile	Ile	Gly	Gly	
			180					185					190			
Arg	Ser	Val	Asp	Gly	Arg	Pro	Ala	Gly	Gly	Ile	Ala	Pro	Asp	Ala	Thr	
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Leu	His	Ile	Met	Asn	Thr	His	Asp	Gly	Thr	Lys	Asn	Glu	Ile	Met	Ser	
	210					215					220					
Ala	Ala	Ile	Arg	Asn	Ala	Trp	Val	Lys	Leu	Gly	Glu	Arg	Gly	Val	Arg	
225					230					235					240	
Ile	Val	Asn	Asn	Ser	Phe	Gly	Thr	Thr	Ser	Arg	Ala	Gly	Thr	Ala	Asp	
				245					250					255		
His	Phe	Gln	Ile	Ala	Asn	Ser	Glu	Glu	Gln	Tyr	Arg	Gln	Ala	Leu	Leu	
		260						265					270			
Ala	Tyr	Ser	Gly	Gly	Asp	Lys	Thr	Asp	Glu	Gly	Ile	Arg	Leu	Met	Gln	
		275					280					285				
Gln	Ser	Asp	Tyr	Gly	Asn	Leu	Ser	Tyr	His	Ile	Arg	Asn	Lys	Asn	Met	
	290					295					300					
Leu	Phe	Ile	Phe	Ser	Ala	Ser	Asn	Asp	Ala	Gln	Ala	Gln	Pro	Asn	Thr	
305					310					315					320	
Leu	Thr	Leu	Leu	Pro	Phe	Tyr	Glu	Lys	Asp	Ala	Gln	Lys	Gly	Ile	Ile	
				325					330					335		
Thr	Val	Ala	Gly	Val	Asp	Arg	Ser	Gly	Glu	Lys	Phe	Asn	Gly	Ser	Asn	
			340					345					350			
His	Cys	Gly	Ile	Thr	Ala	Met	Trp	Cys	Leu	Ser	Ala	Pro	Tyr	Glu	Ala	
		355					360					365				
Ser	Val	Arg	Phe	Thr	Arg	Thr	Asn	Pro	Ile	Gln	Ile	Ala	Gly	Thr	Ser	
	370					375					380					
Phe	Ser	Ala	Pro	Ile	Val	Thr	Gly	Thr	Ala	Ala	Leu	Leu	Leu	Gln	Lys	
385					390					395					400	
Tyr	Pro	Trp	Met	Ser	Asn	Asp	Asn	Leu	Arg	Thr	Thr	Leu	Leu	Thr	Thr	
				405					410					415		
Ala	Gln	Asp	Ile	Gly	Ala	Val	Gly	Val	Asp	Ser	Lys	Phe	Gly	Trp	Gly	
			420					425					430			
Leu	Leu	Asp	Ala	Gly	Lys	Ala	Met	Asn	Gly	Pro	Ala	Ser	Phe	Pro	Phe	
		435					440					445				
Gly	Asp	Phe	Thr	Ala	Asp	Thr	Lys	Gly	Thr	Ser	Asp	Ile	Ala	Tyr	Ser	
	450					455					460					

Phe	Arg	Asn	Asp	Ile	Ser	Gly	Thr	Gly	Gly	Leu	Ile	Lys	Lys	Gly	Gly		
465					470					475					480		
Ser	Gln	Leu	Gln	Leu	His	Gly	Asn	Asn	Thr	Tyr	Thr	Gly	Lys	Thr	Ile		
				485					490					495			
Ile	Glu	Gly	Gly	Ser	Leu	Val	Leu	Tyr	Gly	Asn	Asn	Lys	Ser	Asp	Met		
			500					505					510				
Arg	Val	Glu	Thr	Lys	Gly	Ala	Leu	Ile	Tyr	Asn	Gly	Ala	Ala	Ser	Gly		
		515					520					525					
Gly	Ser	Leu	Asn	Ser	Asp	Gly	Ile	Val	Tyr	Leu	Ala	Asp	Thr	Asp	Arg		
	530					535					540						
Ser	Gly	Ala	Asn	Glu	Thr	Val	His	Ile	Lys	Gly	Asp	Leu	Gln	Leu	Gly		
545					550					555					560		
Gly	Glu	Gly	Thr	Leu	Tyr	Thr	Arg	Leu	Gly	Lys	Leu	Leu	Lys	Val	Asp		
				565					570					575			
Gly	Thr	Ala	Met	Thr	Gly	Gly	Lys	Leu	Tyr	Met	Ser	Ala	Arg	Gly	Lys		
			580					585					590				
Gly	Ala	Gly	Tyr	Leu	Asn	Arg	Thr	Gly	Gln	Arg	Val	Pro	Phe	Leu	Ser		
		595					600					605					
Ala	Ala	Lys	Ile	Gly	Arg	Asp	Tyr	Ser	Phe	Phe	Thr	Asn	Ile	Glu	Thr		
	610					615					620						
Asp	Gly	Gly	Leu	Leu	Ala	Ser	Leu	Asp	Ser	Val	Glu	Lys	Thr	Ala	Gly		
625					630					635					640		
Ser	Glu	Gly	Asp	Thr	Leu	Ser	Tyr	Tyr	Val	Arg	Arg	Gly	Asn	Ala	Ala		
				645					650					655			
Arg	Thr	Ala	Ser	Ala	Ala	Ala	His	Ser	Ala	Pro	Ala	Gly	Leu	Lys	His		
		660						665					670				
Ala	Val	Glu	Gln	Gly	Gly	Ser	Asn	Leu	Glu	Asn	Leu	Met	Val	Glu	Leu		
		675					680					685					
Asp	Ala	Ser	Glu	Ser	Ser	Ala	Thr	Pro	Glu	Thr	Val	Glu	Thr	Ala	Ala		
	690					695					700						
Ala	Asp	Arg	Thr	Asp	Met	Pro	Gly	Ile	Arg	Pro	Tyr	Gly	Ala	Thr	Phe		
705					710					715					720		
Arg	Ala	Ala	Ala	Ala	Val	Gln	His	Ala	Asn	Ala	Ala	Asp	Gly	Val	Arg		
				725					730					735			
Ile	Phe	Asn	Ser	Leu	Ala	Ala	Thr	Val	Tyr	Ala	Asp	Ser	Thr	Ala	Ala		
			740					745					750				
His	Ala	Asp	Met	Gln	Gly	Arg	Arg	Leu	Lys	Ala	Val	Ser	Asp	Gly	Leu		
		755					760					765					

Asp His Asn Ala Thr Gly Leu Arg Val Ile Ala Gln Thr Gln Gln Asp
 770 775 780
 Gly Gly Thr Trp Glu Gln Gly Gly Val Glu Gly Lys Met Arg Gly Ser
 785 790 795 800
 Thr Gln Thr Val Gly Ile Ala Ala Lys Thr Gly Glu Asn Thr Thr Ala
 805 810 815
 Ala Ala Thr Leu Gly Met Gly His Ser Thr Trp Ser Glu Asn Ser Ala
 820 825 830
 Asn Ala Lys Thr Asp Ser Ile Ser Leu Phe Ala Gly Ile Arg His Asp
 835 840 845
 Ala Gly Asp Ile Gly Tyr Leu Lys Gly Leu Phe Ser Tyr Gly Arg Tyr
 850 855 860
 Lys Asn Ser Ile Ser Arg Ser Thr Gly Ala Asp Glu His Ala Glu Gly
 865 870 875 880
 Ser Val Asn Gly Thr Leu Met Gln Leu Gly Ala Leu Gly Gly Val Asn
 885 890 895
 Val Pro Phe Ala Ala Thr Gly Asp Leu Thr Val Glu Gly Gly Leu Arg
 900 905 910
 Tyr Asp Leu Leu Lys Gln Asp Ala Phe Ala Glu Lys Gly Ser Ala Leu
 915 920 925
 Gly Trp Ser Gly Asn Ser Leu Thr Glu Gly Thr Leu Val Gly Leu Ala
 930 935 940
 Gly Leu Lys Leu Ser Gln Pro Leu Ser Asp Lys Ala Val Leu Phe Ala
 945 950 955 960
 Thr Ala Gly Val Glu Arg Asp Leu Asn Gly Arg Asp Tyr Thr Val Thr
 965 970 975
 Gly Gly Phe Thr Gly Ala Thr Ala Ala Thr Gly Lys Thr Gly Ala Arg
 980 985 990
 Asn Met Pro His Thr Arg Leu Val Ala Gly Leu Gly Ala Asp Val Glu
 995 1000 1005
 Phe Gly Asn Gly Trp Asn Gly Leu Ala Arg Tyr Ser Tyr Ala Gly Ser
 1010 1015 1020
 Lys Gln Tyr Gly Asn His Ser Gly Arg Val Gly Val Gly Tyr Arg Phe
 1025 1030 1035 1040

<211> 858
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> CDS
 <222> (1)..(855)

<400> 54

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Met Ser Glu Glu Lys Leu Lys Met Ser Phe Glu Pro Thr Val Ile Glu	
1 5 10 15	
cat ttg ggt gta aag atg tat tgc cac act gtt cct gcg att gcc gag	96
His Leu Gly Val Lys Met Tyr Ser His Thr Val Pro Ala Ile Ala Glu	
20 25 30	
ttg ata gcg aat gcc tac gat gca tgt gct acg gaa gtg gaa gtt agg	144
Leu Ile Ala Asn Ala Tyr Asp Ala Cys Ala Thr Glu Val Glu Val Arg	
35 40 45	
tta ttc gat aaa ccg gag cat aaa atc gtt att aaa gat aat ggc ata	192
Leu Phe Asp Lys Pro Glu His Lys Ile Val Ile Lys Asp Asn Gly Ile	
50 55 60	
gga atg agc ttc gat gaa atc aat gat ttt tat ttg aga atc ggt cgg	240
Gly Met Ser Phe Asp Glu Ile Asn Asp Phe Tyr Leu Arg Ile Gly Arg	
65 70 75 80	
aac aga agg gaa gaa aaa caa gcc tcc ccg tgc gga aga att cca acg	288
Asn Arg Arg Glu Glu Lys Gln Ala Ser Pro Cys Gly Arg Ile Pro Thr	
85 90 95	
ggt aaa aaa ggt ctt ggt aaa ttg gca tta ttc agg ctt ggc aac aaa	336
Gly Lys Lys Gly Leu Gly Lys Leu Ala Leu Phe Arg Leu Gly Asn Lys	
100 105 110	
atc gaa atc tct act atc caa gga aac gaa ccg gtt act ttt act ttg	384
Ile Glu Ile Ser Thr Ile Gln Gly Asn Glu Arg Val Thr Phe Thr Leu	
115 120 125	
gat tat gca gag att aaa aaa agt gag cgt att tat caa ccg gag ttt	432
Asp Tyr Ala Glu Ile Lys Lys Ser Glu Arg Ile Tyr Gln Pro Glu Phe	
130 135 140	
cag aaa gag tct gtt aaa ccc aat acc gaa aac gga aca act ata act	480
Gln Lys Glu Ser Val Lys Pro Asn Thr Glu Asn Gly Thr Thr Ile Thr	
145 150 155 160	
tta acc gag ctg acg aaa aaa caa gga tac ccg tta gat aat tat gtg	528
Leu Thr Glu Leu Thr Lys Lys Gln Gly Tyr Pro Leu Asp Asn Tyr Val	
165 170 175	
ggg cat ctt tcc cgt tta ttt gat ttt ccg gct cag gat ttt aaa atc	576
Gly His Leu Ser Arg Leu Phe Asp Phe Pro Ala Gln Asp Phe Lys Ile	
180 185 190	

aaa gta agc ttg aac ggc tcg gaa cca aga atc att gac gga aac cta	624
Lys Val Ser Leu Asn Gly Ser Glu Pro Arg Ile Ile Asp Gly Asn Leu	
195 200 205	

aaa tat aat ctt gtt acc cca caa ttc gaa tgg gaa tac cag gat cta	672
Lys Tyr Asn Leu Val Thr Pro Gln Phe Glu Trp Glu Tyr Gln Asp Leu	
210 215 220	

gca acc aat att tca tcg tta tct tca aaa ttc gaa cag tat gaa tac	720
Ala Thr Asn Ile Ser Ser Leu Ser Ser Lys Phe Glu Gln Tyr Glu Tyr	
225 230 235 240	

agc gga tta ata caa ggt aag ttc att aca acg gaa aaa cct tta aag	768
Ser Gly Leu Ile Gln Gly Lys Phe Ile Thr Thr Glu Lys Pro Leu Lys	
245 250 255	

aat aat atg aaa ggt att acc ttg ttt gcc aac ggc aga atg gta aat	816
Asn Asn Met Lys Gly Ile Thr Leu Phe Ala Asn Gly Arg Met Val Asn	
260 265 270	

atg ccc gag ttt ttc act gat agc gaa tcc agc cat ttc taa	858
Met Pro Glu Phe Phe Thr Asp Ser Glu Ser Ser His Phe	
275 280 285	

<210> 55
 <211> 285
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 55	
Met Ser Glu Glu Lys Leu Lys Met Ser Phe Glu Pro Thr Val Ile Glu	
1 5 10 15	

His Leu Gly Val Lys Met Tyr Ser His Thr Val Pro Ala Ile Ala Glu	
20 25 30	

Leu Ile Ala Asn Ala Tyr Asp Ala Cys Ala Thr Glu Val Glu Val Arg	
35 40 45	

Leu Phe Asp Lys Pro Glu His Lys Ile Val Ile Lys Asp Asn Gly Ile	
50 55 60	

Gly Met Ser Phe Asp Glu Ile Asn Asp Phe Tyr Leu Arg Ile Gly Arg	
65 70 75 80	

Asn Arg Arg Glu Glu Lys Gln Ala Ser Pro Cys Gly Arg Ile Pro Thr	
85 90 95	

Gly Lys Lys Gly Leu Gly Lys Leu Ala Leu Phe Arg Leu Gly Asn Lys	
100 105 110	

Ile Glu Ile Ser Thr Ile Gln Gly Asn Glu Arg Val Thr Phe Thr Leu	
115 120 125	

Asp Tyr Ala Glu Ile Lys Lys Ser Glu Arg Ile Tyr Gln Pro Glu Phe	
130 135 140	

Gln Lys Glu Ser Val Lys Pro Asn Thr Glu Asn Gly Thr Thr Ile Thr
 145 150 155 160
 Leu Thr Glu Leu Thr Lys Lys Gln Gly Tyr Pro Leu Asp Asn Tyr Val
 165 170 175
 Gly His Leu Ser Arg Leu Phe Asp Phe Pro Ala Gln Asp Phe Lys Ile
 180 185 190
 Lys Val Ser Leu Asn Gly Ser Glu Pro Arg Ile Ile Asp Gly Asn Leu
 195 200 205
 Lys Tyr Asn Leu Val Thr Pro Gln Phe Glu Trp Glu Tyr Gln Asp Leu
 210 215 220
 Ala Thr Asn Ile Ser Ser Leu Ser Ser Lys Phe Glu Gln Tyr Glu Tyr
 225 230 235 240
 Ser Gly Leu Ile Gln Gly Lys Phe Ile Thr Thr Glu Lys Pro Leu Lys
 245 250 255
 Asn Asn Met Lys Gly Ile Thr Leu Phe Ala Asn Gly Arg Met Val Asn
 260 265 270
 Met Pro Glu Phe Phe Thr Asp Ser Glu Ser Ser His Phe
 275 280 285

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 <211> 1575
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
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 <222> (1)..(1572)

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 Met Lys Lys Ser Leu Phe Val Leu Phe Leu Tyr Ser Ser Leu Leu Thr
 1 5 10 15
 gcc agc gaa atc gcc tat cgc ttt gta ttc gga att gaa acc tta ccg 96
 Ala Ser Glu Ile Ala Tyr Arg Phe Val Phe Gly Ile Glu Thr Leu Pro
 20 25 30
 gct gca aaa atg gcg gaa acg ttt gcg ctg aca ttt atg att gct gcg 144
 Ala Ala Lys Met Ala Glu Thr Phe Ala Leu Thr Phe Met Ile Ala Ala
 35 40 45
 ctg tat ctg ttt gcg cgt tat aag gct tcg cgg ctg ctg att gcg gtg 192
 Leu Tyr Leu Phe Ala Arg Tyr Lys Ala Ser Arg Leu Leu Ile Ala Val
 50 55 60
 ttt ttc gcg ttc agc atg att gcc aac aat gtg cat tac gcg gtt tat 240

Phe 65	Phe	Ala	Phe	Ser	Met 70	Ile	Ala	Asn	Asn	Val 75	His	Tyr	Ala	Val	Tyr 80	
caa	agc	tgg	atg	acg	ggt	att	aac	tat	tgg	ctg	atg	ctg	aaa	gag	ggt	288
Gln	Ser	Trp	Met	Thr	Gly	Ile	Asn	Tyr	Trp	Leu	Met	Leu	Lys	Glu	Val	
				85					90					95		
acc	gaa	gtc	ggc	agc	gcg	ggc	gcg	tcg	atg	ttg	gat	aag	ttg	tgg	ctg	336
Thr	Glu	Val	Gly	Ser	Ala	Gly	Ala	Ser	Met	Leu	Asp	Lys	Leu	Trp	Leu	
			100					105					110			
cct	gct	ttg	tgg	ggc	gtg	gcg	gaa	gtc	atg	ttg	ttt	tgc	agc	ctt	gcc	384
Pro	Ala	Leu	Trp	Gly	Val	Ala	Glu	Val	Met	Leu	Phe	Cys	Ser	Leu	Ala	
		115						120					125			
aag	ttc	cgc	cgt	aag	acg	cat	ttt	tct	gcc	gat	ata	ctg	ttt	gcc	ttc	432
Lys	Phe	Arg	Arg	Lys	Thr	His	Phe	Ser	Ala	Asp	Ile	Leu	Phe	Ala	Phe	
	130					135					140					
cta	atg	ctg	atg	att	ttc	gtg	cgt	tcg	ttc	gac	acg	aaa	caa	gag	cac	480
Leu	Met	Leu	Met	Ile	Phe	Val	Arg	Ser	Phe	Asp	Thr	Lys	Gln	Glu	His	
145					150					155					160	
ggt	att	tcg	ccc	aaa	ccg	aca	tac	agc	cgc	atc	aaa	gcc	aat	tat	ttc	528
Gly	Ile	Ser	Pro	Lys	Pro	Thr	Tyr	Ser	Arg	Ile	Lys	Ala	Asn	Tyr	Phe	
				165					170					175		
agc	ttc	ggt	tat	ttt	gtc	ggg	cgc	gtg	ttg	ccg	tat	cag	ttg	ttt	gat	576
Ser	Phe	Gly	Tyr	Phe	Val	Gly	Arg	Val	Leu	Pro	Tyr	Gln	Leu	Phe	Asp	
			180					185					190			
tta	agc	aag	atc	cct	gtg	ttc	aaa	cag	cct	gct	cca	agc	aaa	atc	ggg	624
Leu	Ser	Lys	Ile	Pro	Val	Phe	Lys	Gln	Pro	Ala	Pro	Ser	Lys	Ile	Gly	
		195					200					205				
caa	ggc	agt	att	caa	aat	atc	gtc	ctg	att	atg	ggc	gaa	agc	gaa	agc	672
Gln	Gly	Ser	Ile	Gln	Asn	Ile	Val	Leu	Ile	Met	Gly	Glu	Ser	Glu	Ser	
	210					215					220					
gcg	gcg	cat	ttg	aaa	ttg	ttt	ggt	tac	ggg	cgc	gaa	act	tcg	ccg	ttt	720
Ala	Ala	His	Leu	Lys	Leu	Phe	Gly	Tyr	Gly	Arg	Glu	Thr	Ser	Pro	Phe	
225					230					235					240	
tta	acc	cgg	ctg	tcg	caa	gcc	gat	ttt	aag	ccg	att	gtg	aaa	caa	agt	768
Leu	Thr	Arg	Leu	Ser	Gln	Ala	Asp	Phe	Lys	Pro	Ile	Val	Lys	Gln	Ser	
				245					250					255		
tat	tcc	gca	ggc	ttt	atg	acg	gca	gta	tcc	ctg	ccc	agt	ttc	ttt	aac	816
Tyr	Ser	Ala	Gly	Phe	Met	Thr	Ala	Val	Ser	Leu	Pro	Ser	Phe	Phe	Asn	
			260					265					270			
gtc	ata	ccg	cac	gcc	aac	ggc	ttg	gaa	caa	atc	agc	ggc	ggc	gat	acc	864
Val	Ile	Pro	His	Ala	Asn	Gly	Leu	Glu	Gln	Ile	Ser	Gly	Gly	Asp	Thr	
		275				280						285				
aat	atg	ttc	cgc	ctc	gcc	aaa	gag	cag	ggc	tat	gaa	acg	tat	ttt	tac	912
Asn	Met	Phe	Arg	Leu	Ala	Lys	Glu	Gln	Gly	Tyr	Glu	Thr	Tyr	Phe	Tyr	

290	295	300	
agt gcc cag gct gaa aac caa atg gca att ttg aac tta atc ggt aag			960
Ser Ala Gln Ala Glu Asn Gln Met Ala Ile Leu Asn Leu Ile Gly Lys			
305	310	315	320
aaa tgg ata gac cat ctg att cag ccg acg caa ctt ggc tac ggc aac			1008
Lys Trp Ile Asp His Leu Ile Gln Pro Thr Gln Leu Gly Tyr Gly Asn			
	325	330	335
ggc gac aat atg ccc gat gag aag ctg ctg ccg ttg ttc gac aaa atc			1056
Gly Asp Asn Met Pro Asp Glu Lys Leu Leu Pro Leu Phe Asp Lys Ile			
	340	345	350
aat ttg cag cag ggc agg cat ttt atc gtg ttg cac caa cgc ggt tcg			1104
Asn Leu Gln Gln Gly Arg His Phe Ile Val Leu His Gln Arg Gly Ser			
	355	360	365
cac gcc cca tac ggc gca ttg ttg cag cct caa gat aaa gta ttc ggc			1152
His Ala Pro Tyr Gly Ala Leu Leu Gln Pro Gln Asp Lys Val Phe Gly			
	370	375	380
gaa gcc gat att gtg gat aag tac gac aac acc atc cac aaa acc gac			1200
Glu Ala Asp Ile Val Asp Lys Tyr Asp Asn Thr Ile His Lys Thr Asp			
	385	390	400
caa atg att caa acc gta ttc gag cag ctg caa aag cag cct gac ggc			1248
Gln Met Ile Gln Thr Val Phe Glu Gln Leu Gln Lys Gln Pro Asp Gly			
	405	410	415
aac tgg ctg ttt gcc tat acc tcc gat cat ggc cag tat gtg cgc caa			1296
Asn Trp Leu Phe Ala Tyr Thr Ser Asp His Gly Gln Tyr Val Arg Gln			
	420	425	430
gat atc tac aat caa ggc acg gtg cag ccc gac agc tat att gtg cct			1344
Asp Ile Tyr Asn Gln Gly Thr Val Gln Pro Asp Ser Tyr Ile Val Pro			
	435	440	445
ctg gtt ttg tac agc ccg gat aag gcc gtg caa cag gct gcc aac cag			1392
Leu Val Leu Tyr Ser Pro Asp Lys Ala Val Gln Gln Ala Ala Asn Gln			
	450	455	460
gct ttt gcg cct tgc gag att gcc ttc cat cag cag ctt tca acg ttc			1440
Ala Phe Ala Pro Cys Glu Ile Ala Phe His Gln Gln Leu Ser Thr Phe			
	465	470	475
ctg att cac acg ttg ggc tac gat atg ccg gtt tca ggt tgt cgc gaa			1488
Leu Ile His Thr Leu Gly Tyr Asp Met Pro Val Ser Gly Cys Arg Glu			
	485	490	495
ggc tcg gta aca ggc aac ctg att acg ggc gat gca ggc agc ttg aac			1536
Gly Ser Val Thr Gly Asn Leu Ile Thr Gly Asp Ala Gly Ser Leu Asn			
	500	505	510
att cgc aac ggc aag gcg gaa tat gtt tat ccg caa taa			1575
Ile Arg Asn Gly Lys Ala Glu Tyr Val Tyr Pro Gln			
	515	520	

<210> 57
<211> 524
<212> PRT
<213> Neisseria gonorrhoeae

<400> 57

Met	Lys	Lys	Ser	Leu	Phe	Val	Leu	Phe	Leu	Tyr	Ser	Ser	Leu	Leu	Thr
1				5					10					15	

Ala	Ser	Glu	Ile	Ala	Tyr	Arg	Phe	Val	Phe	Gly	Ile	Glu	Thr	Leu	Pro
			20					25					30		

Ala	Ala	Lys	Met	Ala	Glu	Thr	Phe	Ala	Leu	Thr	Phe	Met	Ile	Ala	Ala
		35					40					45			

Leu	Tyr	Leu	Phe	Ala	Arg	Tyr	Lys	Ala	Ser	Arg	Leu	Leu	Ile	Ala	Val
	50					55					60				

Phe	Phe	Ala	Phe	Ser	Met	Ile	Ala	Asn	Asn	Val	His	Tyr	Ala	Val	Tyr
65					70					75					80

Gln	Ser	Trp	Met	Thr	Gly	Ile	Asn	Tyr	Trp	Leu	Met	Leu	Lys	Glu	Val
				85					90					95	

Thr	Glu	Val	Gly	Ser	Ala	Gly	Ala	Ser	Met	Leu	Asp	Lys	Leu	Trp	Leu
			100					105					110		

Pro	Ala	Leu	Trp	Gly	Val	Ala	Glu	Val	Met	Leu	Phe	Cys	Ser	Leu	Ala
		115					120					125			

Lys	Phe	Arg	Arg	Lys	Thr	His	Phe	Ser	Ala	Asp	Ile	Leu	Phe	Ala	Phe
	130					135					140				

Leu	Met	Leu	Met	Ile	Phe	Val	Arg	Ser	Phe	Asp	Thr	Lys	Gln	Glu	His
145					150					155					160

Gly	Ile	Ser	Pro	Lys	Pro	Thr	Tyr	Ser	Arg	Ile	Lys	Ala	Asn	Tyr	Phe
				165					170					175	

Ser	Phe	Gly	Tyr	Phe	Val	Gly	Arg	Val	Leu	Pro	Tyr	Gln	Leu	Phe	Asp
			180					185					190		

Leu	Ser	Lys	Ile	Pro	Val	Phe	Lys	Gln	Pro	Ala	Pro	Ser	Lys	Ile	Gly
		195					200					205			

Gln	Gly	Ser	Ile	Gln	Asn	Ile	Val	Leu	Ile	Met	Gly	Glu	Ser	Glu	Ser
	210					215					220				

Ala	Ala	His	Leu	Lys	Leu	Phe	Gly	Tyr	Gly	Arg	Glu	Thr	Ser	Pro	Phe
225						230				235					240

Leu	Thr	Arg	Leu	Ser	Gln	Ala	Asp	Phe	Lys	Pro	Ile	Val	Lys	Gln	Ser
				245					250					255	

Tyr Ser Ala Gly Phe Met Thr Ala Val Ser Leu Pro Ser Phe Phe Asn

260										265										270										
Val	Ile	Pro	His	Ala	Asn	Gly	Leu	Glu	Gln	Ile	Ser	Gly	Gly	Asp	Thr															
		275					280					285																		
Asn	Met	Phe	Arg	Leu	Ala	Lys	Glu	Gln	Gly	Tyr	Glu	Thr	Tyr	Phe	Tyr															
	290					295					300																			
Ser	Ala	Gln	Ala	Glu	Asn	Gln	Met	Ala	Ile	Leu	Asn	Leu	Ile	Gly	Lys															
305					310					315					320															
Lys	Trp	Ile	Asp	His	Leu	Ile	Gln	Pro	Thr	Gln	Leu	Gly	Tyr	Gly	Asn															
				325					330					335																
Gly	Asp	Asn	Met	Pro	Asp	Glu	Lys	Leu	Leu	Pro	Leu	Phe	Asp	Lys	Ile															
			340					345					350																	
Asn	Leu	Gln	Gln	Gly	Arg	His	Phe	Ile	Val	Leu	His	Gln	Arg	Gly	Ser															
		355					360					365																		
His	Ala	Pro	Tyr	Gly	Ala	Leu	Leu	Gln	Pro	Gln	Asp	Lys	Val	Phe	Gly															
		370				375					380																			
Glu	Ala	Asp	Ile	Val	Asp	Lys	Tyr	Asp	Asn	Thr	Ile	His	Lys	Thr	Asp															
385					390					395					400															
Gln	Met	Ile	Gln	Thr	Val	Phe	Glu	Gln	Leu	Gln	Lys	Gln	Pro	Asp	Gly															
				405					410					415																
Asn	Trp	Leu	Phe	Ala	Tyr	Thr	Ser	Asp	His	Gly	Gln	Tyr	Val	Arg	Gln															
		420						425					430																	
Asp	Ile	Tyr	Asn	Gln	Gly	Thr	Val	Gln	Pro	Asp	Ser	Tyr	Ile	Val	Pro															
		435					440					445																		
Leu	Val	Leu	Tyr	Ser	Pro	Asp	Lys	Ala	Val	Gln	Gln	Ala	Ala	Asn	Gln															
	450					455					460																			
Ala	Phe	Ala	Pro	Cys	Glu	Ile	Ala	Phe	His	Gln	Gln	Leu	Ser	Thr	Phe															
465					470					475					480															
Leu	Ile	His	Thr	Leu	Gly	Tyr	Asp	Met	Pro	Val	Ser	Gly	Cys	Arg	Glu															
				485				490						495																
Gly	Ser	Val	Thr	Gly	Asn	Leu	Ile	Thr	Gly	Asp	Ala	Gly	Ser	Leu	Asn															
		500						505					510																	
Ile	Arg	Asn	Gly	Lys	Ala	Glu	Tyr	Val	Tyr	Pro	Gln																			
		515					520																							

<210> 58
 <211> 1314
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>

<221> CDS

<222> (1)..(1311)

<400> 58

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Met Leu Thr Phe Ile Gly Leu Leu Ile Ile Gly Val Ile Val Trp Leu	
1 5 10 15	
ttg ctg acg gaa aaa gtg tcg ccc atc atc gca tta atc ttg gtg ccg	96
Leu Leu Thr Glu Lys Val Ser Pro Ile Ile Ala Leu Ile Leu Val Pro	
20 25 30	
ctg att ggg gcg ttg ctg gcg ggg ttt gat gta tcc caa tta aaa gaa	144
Leu Ile Gly Ala Leu Leu Ala Gly Phe Asp Val Ser Gln Leu Lys Glu	
35 40 45	
ttt tat tcg ggc ggc acg aaa tcg gtg acg cag att gtg att atg ttt	192
Phe Tyr Ser Gly Gly Thr Lys Ser Val Thr Gln Ile Val Ile Met Phe	
50 55 60	
atg ttt tcc att ttg ttt ttt gga atc atg aac gat gtg ggg ctg ttc	240
Met Phe Ser Ile Leu Phe Phe Gly Ile Met Asn Asp Val Gly Leu Phe	
65 70 75 80	
cgt ccg atg ata ggc ggt ttg att aag ctg act cgg ggt aat atc gtg	288
Arg Pro Met Ile Gly Gly Leu Ile Lys Leu Thr Arg Gly Asn Ile Val	
85 90 95	
gca gtg agt gtg ggg acg gtc ttg gtg tcg gtg gtg gca cag ttg gac	336
Ala Val Ser Val Gly Thr Val Leu Val Ser Val Val Ala Gln Leu Asp	
100 105 110	
ggg gcg ggc gcg acg acg ttt tta tcg gtc gtc ccc gcc ctt ttg ccg	384
Gly Ala Gly Ala Thr Thr Phe Leu Ser Val Val Pro Ala Leu Leu Pro	
115 120 125	
ctt tac aag cgt ctg cat atg aat cct tac ctg ctg ttt ttg ctg ctg	432
Leu Tyr Lys Arg Leu His Met Asn Pro Tyr Leu Leu Phe Leu Leu Leu	
130 135 140	
act tcc agc gcg ggg cta atc aac ctt ttg ccg cgg ggc ggg ccg atc	480
Thr Ser Ser Ala Gly Leu Ile Asn Leu Leu Pro Arg Gly Gly Pro Ile	
145 150 155 160	
ggg cgg gtt gca agc gtg ttg ggc gca gat gtg ggc gaa ttg tat aaa	528
Gly Arg Val Ala Ser Val Leu Gly Ala Asp Val Gly Glu Leu Tyr Lys	
165 170 175	
cct ttg ttg acg gtg caa att atc ggt gtg gtg ttt atc ctt gtg ctg	576
Pro Leu Leu Thr Val Gln Ile Ile Gly Val Val Phe Ile Leu Val Leu	
180 185 190	
tcc ctg ttt ttg ggt gtg cgt gaa aaa agg cgg att gtc cgg gag ttg	624
Ser Leu Phe Leu Gly Val Arg Glu Lys Arg Arg Ile Val Arg Glu Leu	
195 200 205	

ggc gcg ttg ccc gcc gtg gcg gat ttg ata aag ccg gcg cct ttg tcg	672
Gly Ala Leu Pro Ala Val Ala Asp Leu Ile Lys Pro Ala Pro Leu Ser	
210 215 220	
gaa gaa gaa caa aaa ttg gcg cgt ccg aaa ctg ttt tgg tgg aat gtc	720
Glu Glu Glu Gln Lys Leu Ala Arg Pro Lys Leu Phe Trp Trp Asn Val	
225 230 235 240	
ctg ctg ttt ttg gcg gcg atg agc ctg ctt ttt tcg ggc atc ttc ccg	768
Leu Leu Phe Leu Ala Ala Met Ser Leu Leu Phe Ser Gly Ile Phe Pro	
245 250 255	
ccg ggt tat gta ttt atg ctg gct gca acg gcg gcg ttg ctt ttg aat	816
Pro Gly Tyr Val Phe Met Leu Ala Ala Thr Ala Ala Leu Leu Leu Asn	
260 265 270	
tac cgc agc ccg cag gaa cag atg gag cgg att tat gcc cac gcc ggc	864
Tyr Arg Ser Pro Gln Glu Gln Met Glu Arg Ile Tyr Ala His Ala Gly	
275 280 285	
ggc gcg gtg atg atg gcg tcc att att ttg gcg gca ggt acg ttt ttg	912
Gly Ala Val Met Met Ala Ser Ile Ile Leu Ala Ala Gly Thr Phe Leu	
290 295 300	
ggg att ttg aag ggc gcg ggg atg ttg gac gcg att tcc aaa gac ctt	960
Gly Ile Leu Lys Gly Ala Gly Met Leu Asp Ala Ile Ser Lys Asp Leu	
305 310 315 320	
gtg cat atc ctg ccg gac gcg ttg ctg cct tat ctg cat att gcc atc	1008
Val His Ile Leu Pro Asp Ala Leu Leu Pro Tyr Leu His Ile Ala Ile	
325 330 335	
ggt gtg ttg ggt att ccg ctt gag ttg gtt ttg agt acg gac gct tat	1056
Gly Val Leu Gly Ile Pro Leu Glu Leu Val Leu Ser Thr Asp Ala Tyr	
340 345 350	
tat ttc gga ctg ttt ccg att gtg gaa cag att acc tcg cag gcg ggc	1104
Tyr Phe Gly Leu Phe Pro Ile Val Glu Gln Ile Thr Ser Gln Ala Gly	
355 360 365	
gtt gca ccc gaa gcg gca ggc tat gcg atg ttg atc ggc agt atc gtc	1152
Val Ala Pro Glu Ala Ala Gly Tyr Ala Met Leu Ile Gly Ser Ile Val	
370 375 380	
ggt act ttt gtt acg ccg ctt tcg ccg gct ttg tgg atg ggt ttg ggt	1200
Gly Thr Phe Val Thr Pro Leu Ser Pro Ala Leu Trp Met Gly Leu Gly	
385 390 395 400	
ttg gcg aaa ttg tcg atg ggc aaa cac atc cgt tat tcg ttt ttc tgg	1248
Leu Ala Lys Leu Ser Met Gly Lys His Ile Arg Tyr Ser Phe Phe Trp	
405 410 415	
gcg tgg ggt ttg tcg ctg gcg ata ttg gtc agt tcg ata gcg gca gga	1296
Ala Trp Gly Leu Ser Leu Ala Ile Leu Val Ser Ser Ile Ala Ala Gly	
420 425 430	
atc gtg cct ctg ccg taa	1314

Ile Val Pro Leu Pro
435

<210> 59
<211> 437
<212> PRT
<213> Neisseria gonorrhoeae

<400> 59

Met Leu Thr Phe Ile Gly Leu Leu Ile Ile Gly Val Ile Val Trp Leu
1 5 10 15

Leu Leu Thr Glu Lys Val Ser Pro Ile Ile Ala Leu Ile Leu Val Pro
20 25 30

Leu Ile Gly Ala Leu Leu Ala Gly Phe Asp Val Ser Gln Leu Lys Glu
35 40 45

Phe Tyr Ser Gly Gly Thr Lys Ser Val Thr Gln Ile Val Ile Met Phe
50 55 60

Met Phe Ser Ile Leu Phe Phe Gly Ile Met Asn Asp Val Gly Leu Phe
65 70 75 80

Arg Pro Met Ile Gly Gly Leu Ile Lys Leu Thr Arg Gly Asn Ile Val
85 90 95

Ala Val Ser Val Gly Thr Val Leu Val Ser Val Val Ala Gln Leu Asp
100 105 110

Gly Ala Gly Ala Thr Thr Phe Leu Ser Val Val Pro Ala Leu Leu Pro
115 120 125

Leu Tyr Lys Arg Leu His Met Asn Pro Tyr Leu Leu Phe Leu Leu Leu
130 135 140

Thr Ser Ser Ala Gly Leu Ile Asn Leu Leu Pro Arg Gly Gly Pro Ile
145 150 155 160

Gly Arg Val Ala Ser Val Leu Gly Ala Asp Val Gly Glu Leu Tyr Lys
165 170 175

Pro Leu Leu Thr Val Gln Ile Ile Gly Val Val Phe Ile Leu Val Leu
180 185 190

Ser Leu Phe Leu Gly Val Arg Glu Lys Arg Arg Ile Val Arg Glu Leu
195 200 205

Gly Ala Leu Pro Ala Val Ala Asp Leu Ile Lys Pro Ala Pro Leu Ser
210 215 220

Glu Glu Glu Gln Lys Leu Ala Arg Pro Lys Leu Phe Trp Trp Asn Val
225 230 235 240

Leu Leu Phe Leu Ala Ala Met Ser Leu Leu Phe Ser Gly Ile Phe Pro
245 250 255

Pro Gly Tyr Val Phe Met Leu Ala Ala Thr Ala Ala Leu Leu Leu Asn
 260 265 270
 Tyr Arg Ser Pro Gln Glu Gln Met Glu Arg Ile Tyr Ala His Ala Gly
 275 280 285
 Gly Ala Val Met Met Ala Ser Ile Ile Leu Ala Ala Gly Thr Phe Leu
 290 295 300
 Gly Ile Leu Lys Gly Ala Gly Met Leu Asp Ala Ile Ser Lys Asp Leu
 305 310 315 320
 Val His Ile Leu Pro Asp Ala Leu Leu Pro Tyr Leu His Ile Ala Ile
 325 330 335
 Gly Val Leu Gly Ile Pro Leu Glu Leu Val Leu Ser Thr Asp Ala Tyr
 340 345 350
 Tyr Phe Gly Leu Phe Pro Ile Val Glu Gln Ile Thr Ser Gln Ala Gly
 355 360 365
 Val Ala Pro Glu Ala Ala Gly Tyr Ala Met Leu Ile Gly Ser Ile Val
 370 375 380
 Gly Thr Phe Val Thr Pro Leu Ser Pro Ala Leu Trp Met Gly Leu Gly
 385 390 395 400
 Leu Ala Lys Leu Ser Met Gly Lys His Ile Arg Tyr Ser Phe Phe Trp
 405 410 415
 Ala Trp Gly Leu Ser Leu Ala Ile Leu Val Ser Ser Ile Ala Ala Gly
 420 425 430
 Ile Val Pro Leu Pro
 435

<210> 60
 <211> 1155
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> CDS
 <222> (1)..(1152)

<400> 60
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 Met Gly Ile His Leu Asp Phe Gly Ile Ser Pro Lys Thr Phe Arg Gln
 1 5 10 15
 act tat ctg tat caa aag ccc aag ctc ttt aaa gga gcg gtt cgg aat 96
 Thr Tyr Leu Tyr Gln Lys Pro Lys Leu Phe Lys Gly Ala Val Arg Asn
 20 25 30

ctc gaa gcc gca tct tgt aaa tat atc aac gag ata tac caa cga gca	144
Leu Glu Ala Ala Ser Cys Lys Tyr Ile Asn Glu Ile Tyr Gln Arg Ala	
35 40 45	
gac cca acc gca ccg ctg ttt cat ctg cgt aaa aaa ggc gca atc gtt	192
Asp Pro Thr Ala Pro Leu Phe His Leu Arg Lys Lys Gly Ala Ile Val	
50 55 60	
cct aaa gaa gaa tac gtc gaa agt ttc gac gat ttg ggc aaa act cgc	240
Pro Lys Glu Glu Tyr Val Glu Ser Phe Asp Asp Leu Gly Lys Thr Arg	
65 70 75 80	
tac cgt ttt att aaa tcc gtt atc tac gaa cat atg aag aat ggt gcg	288
Tyr Arg Phe Ile Lys Ser Val Ile Tyr Glu His Met Lys Asn Gly Ala	
85 90 95	
tcg tta gtc tat aac cat att aac aac gag ccg ttt tca gac cat atc	336
Ser Leu Val Tyr Asn His Ile Asn Asn Glu Pro Phe Ser Asp His Ile	
100 105 110	
gcc cgt caa gtc gcc cgc ttt gcc ggc gca cat act att gtt agt gga	384
Ala Arg Gln Val Ala Arg Phe Ala Gly Ala His Thr Ile Val Ser Gly	
115 120 125	
tat ctt gct ttt ggc agc gac gaa tct tat aaa aac cat tgg gat acc	432
Tyr Leu Ala Phe Gly Ser Asp Glu Ser Tyr Lys Asn His Trp Asp Thr	
130 135 140	
cgc gat gtg tat gcc atc cag ctt ttc ggc aag aaa cgt tgg caa ctt	480
Arg Asp Val Tyr Ala Ile Gln Leu Phe Gly Lys Lys Arg Trp Gln Leu	
145 150 155 160	
act gcc cct gat ttc cct atg cca ttg tat atg caa cag act aaa gat	528
Thr Ala Pro Asp Phe Pro Met Pro Leu Tyr Met Gln Gln Thr Lys Asp	
165 170 175	
act gat att tcc att cct gaa cat atc gat atg gat att atc ctt gaa	576
Thr Asp Ile Ser Ile Pro Glu His Ile Asp Met Asp Ile Ile Leu Glu	
180 185 190	
gca ggt gat gtc ctc tac atc cca cgc ggt tgg tgg cac aga cct atc	624
Ala Gly Asp Val Leu Tyr Ile Pro Arg Gly Trp Trp His Arg Pro Ile	
195 200 205	
ccg ctc ggc tgt gaa acc ttc cac ttc gct gtc ggt acc ttc cca cca	672
Pro Leu Gly Cys Glu Thr Phe His Phe Ala Val Gly Thr Phe Pro Pro	
210 215 220	
aac ggc tat aat tac ctc gag tgg cta atg aag aaa ttt ccc acc ata	720
Asn Gly Tyr Asn Tyr Leu Glu Trp Leu Met Lys Lys Phe Pro Thr Ile	
225 230 235 240	
gaa agt ctg cgc cac agt ttc tca gac tgg gag caa gat agg acg cgt	768
Glu Ser Leu Arg His Ser Phe Ser Asp Trp Glu Gln Asp Arg Thr Arg	
245 250 255	
atc aac gat act gcc gca caa att gct gcc atg att gcc gac ccc gtc	816

Ile Asn Asp Thr Ala Ala Gln Ile Ala Ala Met Ile Ala Asp Pro Val	
260 265 270	
aat tat gaa gcc ttc agt gaa gac ttt ctc ggc aaa gaa cgt acc gat	864
Asn Tyr Glu Ala Phe Ser Glu Asp Phe Leu Gly Lys Glu Arg Thr Asp	
275 280 285	
acc gct ttt cat ctc gaa cag ttc gcg aat ccc aac gct act ccg ctt	912
Thr Ala Phe His Leu Glu Gln Phe Ala Asn Pro Asn Ala Thr Pro Leu	
290 295 300	
tca gac gac gtc agg ttg aga tta aat gcc aat aat ttg gat acg ttg	960
Ser Asp Asp Val Arg Leu Arg Leu Asn Ala Asn Asn Leu Asp Thr Leu	
305 310 315 320	
gaa aag gga tat ttg att ggg aat ggg atg aag ata agc gta gat gag	1008
Glu Lys Gly Tyr Leu Ile Gly Asn Gly Met Lys Ile Ser Val Asp Glu	
325 330 335	
ttg ggg aaa aaa gtg tta gaa cac atc ggt aag aat gaa ccg tta ttg	1056
Leu Gly Lys Lys Val Leu Glu His Ile Gly Lys Asn Glu Pro Leu Leu	
340 345 350	
ttg aaa aat cta ctg gtt aac ttc aat cag gca aaa cat gaa gaa gtt	1104
Leu Lys Asn Leu Leu Val Asn Phe Asn Gln Ala Lys His Glu Glu Val	
355 360 365	
agg aag ttg atc tat cag ttg ata gag tta gat ttt ctg gaa att ttg	1152
Arg Lys Leu Ile Tyr Gln Leu Ile Glu Leu Asp Phe Leu Glu Ile Leu	
370 375 380	
tga	1155

<210> 61
 <211> 384
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 61	
Met Gly Ile His Leu Asp Phe Gly Ile Ser Pro Lys Thr Phe Arg Gln	
1 5 10 15	
Thr Tyr Leu Tyr Gln Lys Pro Lys Leu Phe Lys Gly Ala Val Arg Asn	
20 25 30	
Leu Glu Ala Ala Ser Cys Lys Tyr Ile Asn Glu Ile Tyr Gln Arg Ala	
35 40 45	
Asp Pro Thr Ala Pro Leu Phe His Leu Arg Lys Lys Gly Ala Ile Val	
50 55 60	
Pro Lys Glu Glu Tyr Val Glu Ser Phe Asp Asp Leu Gly Lys Thr Arg	
65 70 75 80	
Tyr Arg Phe Ile Lys Ser Val Ile Tyr Glu His Met Lys Asn Gly Ala	
85 90 95	

Ser	Leu	Val	Tyr	Asn	His	Ile	Asn	Asn	Glu	Pro	Phe	Ser	Asp	His	Ile	100	105	110	
Ala	Arg	Gln	Val	Ala	Arg	Phe	Ala	Gly	Ala	His	Thr	Ile	Val	Ser	Gly	115	120	125	
Tyr	Leu	Ala	Phe	Gly	Ser	Asp	Glu	Ser	Tyr	Lys	Asn	His	Trp	Asp	Thr	130	135	140	
Arg	Asp	Val	Tyr	Ala	Ile	Gln	Leu	Phe	Gly	Lys	Lys	Arg	Trp	Gln	Leu	145	150	155	160
Thr	Ala	Pro	Asp	Phe	Pro	Met	Pro	Leu	Tyr	Met	Gln	Gln	Thr	Lys	Asp	165	170	175	
Thr	Asp	Ile	Ser	Ile	Pro	Glu	His	Ile	Asp	Met	Asp	Ile	Ile	Leu	Glu	180	185	190	
Ala	Gly	Asp	Val	Leu	Tyr	Ile	Pro	Arg	Gly	Trp	Trp	His	Arg	Pro	Ile	195	200	205	
Pro	Leu	Gly	Cys	Glu	Thr	Phe	His	Phe	Ala	Val	Gly	Thr	Phe	Pro	Pro	210	215	220	
Asn	Gly	Tyr	Asn	Tyr	Leu	Glu	Trp	Leu	Met	Lys	Lys	Phe	Pro	Thr	Ile	225	230	235	240
Glu	Ser	Leu	Arg	His	Ser	Phe	Ser	Asp	Trp	Glu	Gln	Asp	Arg	Thr	Arg	245	250	255	
Ile	Asn	Asp	Thr	Ala	Ala	Gln	Ile	Ala	Ala	Met	Ile	Ala	Asp	Pro	Val	260	265	270	
Asn	Tyr	Glu	Ala	Phe	Ser	Glu	Asp	Phe	Leu	Gly	Lys	Glu	Arg	Thr	Asp	275	280	285	
Thr	Ala	Phe	His	Leu	Glu	Gln	Phe	Ala	Asn	Pro	Asn	Ala	Thr	Pro	Leu	290	295	300	
Ser	Asp	Asp	Val	Arg	Leu	Arg	Leu	Asn	Ala	Asn	Asn	Leu	Asp	Thr	Leu	305	310	315	320
Glu	Lys	Gly	Tyr	Leu	Ile	Gly	Asn	Gly	Met	Lys	Ile	Ser	Val	Asp	Glu	325	330	335	
Leu	Gly	Lys	Lys	Val	Leu	Glu	His	Ile	Gly	Lys	Asn	Glu	Pro	Leu	Leu	340	345	350	
Leu	Lys	Asn	Leu	Leu	Val	Asn	Phe	Asn	Gln	Ala	Lys	His	Glu	Glu	Val	355	360	365	
Arg	Lys	Leu	Ile	Tyr	Gln	Leu	Ile	Glu	Leu	Asp	Phe	Leu	Glu	Ile	Leu	370	375	380	

<210> 62
 <211> 717
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> CDS
 <222> (1)..(714)

<400> 62

atg aat aga ccc aag caa ccc ttc ttc cgt ccc gaa gtc gcc gtt gcc	48
Met Asn Arg Pro Lys Gln Pro Phe Phe Arg Pro Glu Val Ala Val Ala	
1 5 10 15	
cgc caa acc agc ctg acg ggt aaa gtg att ctg aca cga ccg ttg tca	96
Arg Gln Thr Ser Leu Thr Gly Lys Val Ile Leu Thr Arg Pro Leu Ser	
20 25 30	
ttt tcc cta tgg acg aca ttt gca tgc ata tct gcg tta ttg att atc	144
Phe Ser Leu Trp Thr Thr Phe Ala Ser Ile Ser Ala Leu Leu Ile Ile	
35 40 45	
ctg ttt ttg ata ttt ggt aac tat acg cga aag aca aca gtg gag gga	192
Leu Phe Leu Ile Phe Gly Asn Tyr Thr Arg Lys Thr Thr Val Glu Gly	
50 55 60	
caa att tta cct gca tgc ggc gta atc agg gtg tat gca ccg gat acg	240
Gln Ile Leu Pro Ala Ser Gly Val Ile Arg Val Tyr Ala Pro Asp Thr	
65 70 75 80	
ggg aca att aca gcg aaa ttc gtg gaa gat gga gaa aag gtt aag gct	288
Gly Thr Ile Thr Ala Lys Phe Val Glu Asp Gly Glu Lys Val Lys Ala	
85 90 95	
ggc gac aag cta ttt gcg ctt tgc acc tca cgt ttc ggc gca gga gat	336
Gly Asp Lys Leu Phe Ala Leu Ser Thr Ser Arg Phe Gly Ala Gly Asp	
100 105 110	
agc gtg cag cag cag ttg aaa acg gag gca gtt ttg aag aaa acg ttg	384
Ser Val Gln Gln Gln Leu Lys Thr Glu Ala Val Leu Lys Lys Thr Leu	
115 120 125	
gca gaa cag gaa ctg ggt cgt ctg aag ctg ata cac ggg aat gaa acg	432
Ala Glu Gln Glu Leu Gly Arg Leu Lys Leu Ile His Gly Asn Glu Thr	
130 135 140	
cgc agc ctt aaa gca act gtc gaa cgt ttg gaa aac cag gaa ctc cat	480
Arg Ser Leu Lys Ala Thr Val Glu Arg Leu Glu Asn Gln Glu Leu His	
145 150 155 160	
att tgc caa cag ata gac ggt cag aaa agg cgc att aga ctt gcg gaa	528
Ile Ser Gln Gln Ile Asp Gly Gln Lys Arg Arg Ile Arg Leu Ala Glu	
165 170 175	
gaa atg ttg cag aaa tat cgt ttc cta tcc gcc aat gat gca gtg cca	576
Glu Met Leu Gln Lys Tyr Arg Phe Leu Ser Ala Asn Asp Ala Val Pro	
180 185 190	

aaa	caa	gaa	atg	atg	aat	gtc	aag	gca	gag	ctt	tta	gag	cag	aaa	gcc	624
Lys	Gln	Glu	Met	Met	Asn	Val	Lys	Ala	Glu	Leu	Leu	Glu	Gln	Lys	Ala	
		195						200							205	

aaa	ctt	gat	gcc	tac	cgc	cga	gaa	gaa	gtc	ggg	ctg	ctt	cag	gaa	atc	672
Lys	Leu	Asp	Ala	Tyr	Arg	Arg	Glu	Glu	Val	Gly	Leu	Leu	Gln	Glu	Ile	
	210					215					220					

cgc	acg	cag	aat	ctg	aca	ttg	gcc	agc	ctc	ccc	caa	gcg	gca	tga	717
Arg	Thr	Gln	Asn	Leu	Thr	Leu	Ala	Ser	Leu	Pro	Gln	Ala	Ala		
225					230					235					

<210> 63
 <211> 238
 <212> PRT
 <213> Neisseria meningitidis

<400> 63
Met Asn Arg Pro Lys Gln Pro Phe Phe Arg Pro Glu Val Ala Val Ala
1 5 10 15

Arg Gln Thr Ser Leu Thr Gly Lys Val Ile Leu Thr Arg Pro Leu Ser
20 25 30

Phe Ser Leu Trp Thr Thr Phe Ala Ser Ile Ser Ala Leu Leu Ile Ile
35 40 45

Leu Phe Leu Ile Phe Gly Asn Tyr Thr Arg Lys Thr Thr Val Glu Gly
50 55 60

Gln Ile Leu Pro Ala Ser Gly Val Ile Arg Val Tyr Ala Pro Asp Thr
65 70 75 80

Gly Thr Ile Thr Ala Lys Phe Val Glu Asp Gly Glu Lys Val Lys Ala
85 90 95

Gly Asp Lys Leu Phe Ala Leu Ser Thr Ser Arg Phe Gly Ala Gly Asp
100 105 110

Ser Val Gln Gln Gln Leu Lys Thr Glu Ala Val Leu Lys Lys Thr Leu
115 120 125

Ala Glu Gln Glu Leu Gly Arg Leu Lys Leu Ile His Gly Asn Glu Thr
130 135 140

Arg Ser Leu Lys Ala Thr Val Glu Arg Leu Glu Asn Gln Glu Leu His
145 150 155 160

Ile Ser Gln Gln Ile Asp Gly Gln Lys Arg Arg Ile Arg Leu Ala Glu
165 170 175

Glu Met Leu Gln Lys Tyr Arg Phe Leu Ser Ala Asn Asp Ala Val Pro
180 185 190

Lys Gln Glu Met Met Asn Val Lys Ala Glu Leu Leu Glu Gln Lys Ala

195

200

205

Lys Leu Asp Ala Tyr Arg Arg Glu Glu Val Gly Leu Leu Gln Glu Ile
 210 215 220

Arg Thr Gln Asn Leu Thr Leu Ala Ser Leu Pro Gln Ala Ala
 225 230 235

<210> 64

<211> 690

<212> DNA

<213> Neisseria gonorrhoeae

<220>

<221> CDS

<222> (1)..(687)

<400> 64

atg atg aat gtc gag gca gag ctt tta gag cag aaa gcc aaa ctt gat 48
 Met Met Asn Val Glu Ala Glu Leu Leu Glu Gln Lys Ala Lys Leu Asp
 1 5 10 15

gcc tac ggc cga gaa gaa gcc ggg ctg ctt cag gaa atc cgc acg cag 96
 Ala Tyr Gly Arg Glu Glu Ala Gly Leu Leu Gln Glu Ile Arg Thr Gln
 20 25 30

aat ctg aca ttg gcc agc ctc ccc aaa cgg cat gag aca gaa caa agc 144
 Asn Leu Thr Leu Ala Ser Leu Pro Lys Arg His Glu Thr Glu Gln Ser
 35 40 45

cag ctt gaa cgc acc atg gcc gat att tct caa gaa gtt ttg gat ttt 192
 Gln Leu Glu Arg Thr Met Ala Asp Ile Ser Gln Glu Val Leu Asp Phe
 50 55 60

gaa atg cgc tct gaa caa atc atc cgt gca gga cgg tcg ggt tat ata 240
 Glu Met Arg Ser Glu Gln Ile Ile Arg Ala Gly Arg Ser Gly Tyr Ile
 65 70 75 80

gca ata ccg aac gtc gaa gtc gga cgg cag gtt gat cct tcc aaa ctg 288
 Ala Ile Pro Asn Val Glu Val Gly Arg Gln Val Asp Pro Ser Lys Leu
 85 90 95

ctc ttg agc att gtt ccc gaa cgt acc gag tta tat gcc cat cta tat 336
 Leu Leu Ser Ile Val Pro Glu Arg Thr Glu Leu Tyr Ala His Leu Tyr
 100 105 110

atc ccc agc agt gca gca ggc ttt atc aag ccg aaa gac aag gtt gtc 384
 Ile Pro Ser Ser Ala Ala Gly Phe Ile Lys Pro Lys Asp Lys Val Val
 115 120 125

cta cgt tat cag gca tat ccc tat cag aaa ttc ggg ctt gct tcc ggc 432
 Leu Arg Tyr Gln Ala Tyr Pro Tyr Gln Lys Phe Gly Leu Ala Ser Gly
 130 135 140

agt gtc gta tca gtg gca aaa acg gca ctg ggc aga cag gaa ttg tcg 480

Ser Val Val Ser Val	Ala Lys Thr Ala Leu Gly Arg Gln Glu Leu Ser	
145	150	155 160
gga ttg ggc atg gta tcc tcc gat ttg gcg aag agc aac gaa cct gtt		528
Gly Leu Gly Met Val Ser Ser Asp Leu Ala Lys Ser Asn Glu Pro Val		
	165 170 175	
tat ctc gtg aaa ata aaa ccc gac aaa cca acc atc act gca tac ggt		576
Tyr Leu Val Lys Ile Lys Pro Asp Lys Pro Thr Ile Thr Ala Tyr Gly		
	180 185 190	
gag gaa aaa ccg ctg caa atc ggc atg acg ctg gaa gca gac atc cta		624
Glu Glu Lys Pro Leu Gln Ile Gly Met Thr Leu Glu Ala Asp Ile Leu		
	195 200 205	
cac gag aaa cgg cgg ctg tac gaa tgg gta ttg gag ccg att tac agt		672
His Glu Lys Arg Arg Leu Tyr Glu Trp Val Leu Glu Pro Ile Tyr Ser		
	210 215 220	
atg tcg ggc agg ttg taa		690
Met Ser Gly Arg Leu		
225		

<210> 65
 <211> 229
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 65	
Met Met Asn Val Glu Ala Glu Leu Leu Glu Gln Lys Ala Lys Leu Asp	
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Ala Tyr Gly Arg Glu Glu Ala Gly Leu Leu Gln Glu Ile Arg Thr Gln	
	20 25 30
Asn Leu Thr Leu Ala Ser Leu Pro Lys Arg His Glu Thr Glu Gln Ser	
	35 40 45
Gln Leu Glu Arg Thr Met Ala Asp Ile Ser Gln Glu Val Leu Asp Phe	
	50 55 60
Glu Met Arg Ser Glu Gln Ile Ile Arg Ala Gly Arg Ser Gly Tyr Ile	
	65 70 75 80
Ala Ile Pro Asn Val Glu Val Gly Arg Gln Val Asp Pro Ser Lys Leu	
	85 90 95
Leu Leu Ser Ile Val Pro Glu Arg Thr Glu Leu Tyr Ala His Leu Tyr	
	100 105 110
Ile Pro Ser Ser Ala Ala Gly Phe Ile Lys Pro Lys Asp Lys Val Val	
	115 120 125
Leu Arg Tyr Gln Ala Tyr Pro Tyr Gln Lys Phe Gly Leu Ala Ser Gly	
	130 135 140

Ser Val Val Ser Val Ala Lys Thr Ala Leu Gly Arg Gln Glu Leu Ser
 145 150 155 160
 Gly Leu Gly Met Val Ser Ser Asp Leu Ala Lys Ser Asn Glu Pro Val
 165 170 175
 Tyr Leu Val Lys Ile Lys Pro Asp Lys Pro Thr Ile Thr Ala Tyr Gly
 180 185 190
 Glu Glu Lys Pro Leu Gln Ile Gly Met Thr Leu Glu Ala Asp Ile Leu
 195 200 205
 His Glu Lys Arg Arg Leu Tyr Glu Trp Val Leu Glu Pro Ile Tyr Ser
 210 215 220
 Met Ser Gly Arg Leu
 225

<210> 66
 <211> 924
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> CDS
 <222> (1)..(921)

<400> 66
 atg caa tac agc aca ctg gca gga caa acc gac aac tcc ctc gtt tcc 48
 Met Gln Tyr Ser Thr Leu Ala Gly Gln Thr Asp Asn Ser Leu Val Ser
 1 5 10 15
 aat aat ttc ggg ttt ttg cgc ctg ccg ctt aat ttt atg ccg tat gaa 96
 Asn Asn Phe Gly Phe Leu Arg Leu Pro Leu Asn Phe Met Pro Tyr Glu
 20 25 30
 agc cat gcc gat tgg gtt att acc ggc gtg cct tat gat atg gcg gtt 144
 Ser His Ala Asp Trp Val Ile Thr Gly Val Pro Tyr Asp Met Ala Val
 35 40 45
 tca ggg cgt tcc ggc gcg cgt ttc ggt cct gaa gcc atc cgg cgc gcc 192
 Ser Gly Arg Ser Gly Ala Arg Phe Gly Pro Glu Ala Ile Arg Arg Ala
 50 55 60
 tcc gtc aac ctc gct tgg gag cac cgc agg ttt ccg tgg aca ttt gat 240
 Ser Val Asn Leu Ala Trp Glu His Arg Arg Phe Pro Trp Thr Phe Asp
 65 70 75 80
 gtg cgc gaa cgc ctg aac att att gat tgc ggc gac ttg gtt ttt tct 288
 Val Arg Glu Arg Leu Asn Ile Ile Asp Cys Gly Asp Leu Val Phe Ser
 85 90 95
 ttt ggc gac agc agg gat ttt gtc gaa aaa atg gaa gcg cac gcc ggc 336
 Phe Gly Asp Ser Arg Asp Phe Val Glu Lys Met Glu Ala His Ala Gly
 100 105 110

aaa tta ctt tct ttc ggc aaa cgc tgt ttg agt ttg ggc ggc gac cat	384
Lys Leu Leu Ser Phe Gly Lys Arg Cys Leu Ser Leu Gly Gly Asp His	
115 120 125	
ttc att acc ctc ccg ttg ttg cgc gcc cac gcc cgc tat ttc ggc aaa	432
Phe Ile Thr Leu Pro Leu Leu Arg Ala His Ala Arg Tyr Phe Gly Lys	
130 135 140	
ctc gca ctg att cat ttt gac gcg cac acc gac acc tac gac aac ggc	480
Leu Ala Leu Ile His Phe Asp Ala His Thr Asp Thr Tyr Asp Asn Gly	
145 150 155 160	
agc gaa tac gac cac ggc acg atg ttt tat acc gcc ccc aag gaa ggc	528
Ser Glu Tyr Asp His Gly Thr Met Phe Tyr Thr Ala Pro Lys Glu Gly	
165 170 175	
ctc atc gac ccg tcc cgt tcc gta caa atc ggc ata cgc acc gaa cac	576
Leu Ile Asp Pro Ser Arg Ser Val Gln Ile Gly Ile Arg Thr Glu His	
180 185 190	
agt aaa aaa ttg cct ttt act gtg ttg tcc gcc ccc aaa gtc aat gaa	624
Ser Lys Lys Leu Pro Phe Thr Val Leu Ser Ala Pro Lys Val Asn Glu	
195 200 205	
gac agt gtt gaa gag acc gtc cgt aaa atc aaa gaa acc gtc ggc aat	672
Asp Ser Val Glu Glu Thr Val Arg Lys Ile Lys Glu Thr Val Gly Asn	
210 215 220	
atg ccc gtt tac ctg act ttc gac ata gac tgt ctc gac ccg tcg ttc	720
Met Pro Val Tyr Leu Thr Phe Asp Ile Asp Cys Leu Asp Pro Ser Phe	
225 230 235 240	
gcc ccc ggg acc ggt acg ccc gta tgc ggc ggc ttg agc agc gac agg	768
Ala Pro Gly Thr Gly Thr Pro Val Cys Gly Gly Leu Ser Ser Asp Arg	
245 250 255	
gca tta aaa atc cta cgt ggg ctg acg gat ctc gac atc gtc ggt atg	816
Ala Leu Lys Ile Leu Arg Gly Leu Thr Asp Leu Asp Ile Val Gly Met	
260 265 270	
gat gtt gta gaa gtt gcc ccc tct tac gac caa tcc gac att acc gct	864
Asp Val Val Glu Val Ala Pro Ser Tyr Asp Gln Ser Asp Ile Thr Ala	
275 280 285	
ttg gcc ggc gcc aca att gcc ttg gaa atg ctt tac ctt caa ggt gcg	912
Leu Ala Gly Ala Thr Ile Ala Leu Glu Met Leu Tyr Leu Gln Gly Ala	
290 295 300	
aaa aag gac tga	924
Lys Lys Asp	
305	

<210> 67
 <211> 307
 <212> PRT

<213> Neisseria gonorrhoeae

<400> 67

Met	Gln	Tyr	Ser	Thr	Leu	Ala	Gly	Gln	Thr	Asp	Asn	Ser	Leu	Val	Ser		
1				5					10					15			
Asn	Asn	Phe	Gly	Phe	Leu	Arg	Leu	Pro	Leu	Asn	Phe	Met	Pro	Tyr	Glu		
			20					25					30				
Ser	His	Ala	Asp	Trp	Val	Ile	Thr	Gly	Val	Pro	Tyr	Asp	Met	Ala	Val		
		35					40					45					
Ser	Gly	Arg	Ser	Gly	Ala	Arg	Phe	Gly	Pro	Glu	Ala	Ile	Arg	Arg	Ala		
	50					55					60						
Ser	Val	Asn	Leu	Ala	Trp	Glu	His	Arg	Arg	Phe	Pro	Trp	Thr	Phe	Asp		
65					70					75					80		
Val	Arg	Glu	Arg	Leu	Asn	Ile	Ile	Asp	Cys	Gly	Asp	Leu	Val	Phe	Ser		
				85					90					95			
Phe	Gly	Asp	Ser	Arg	Asp	Phe	Val	Glu	Lys	Met	Glu	Ala	His	Ala	Gly		
			100					105					110				
Lys	Leu	Leu	Ser	Phe	Gly	Lys	Arg	Cys	Leu	Ser	Leu	Gly	Gly	Asp	His		
	115						120					125					
Phe	Ile	Thr	Leu	Pro	Leu	Leu	Arg	Ala	His	Ala	Arg	Tyr	Phe	Gly	Lys		
	130					135					140						
Leu	Ala	Leu	Ile	His	Phe	Asp	Ala	His	Thr	Asp	Thr	Tyr	Asp	Asn	Gly		
145					150					155					160		
Ser	Glu	Tyr	Asp	His	Gly	Thr	Met	Phe	Tyr	Thr	Ala	Pro	Lys	Glu	Gly		
				165					170					175			
Leu	Ile	Asp	Pro	Ser	Arg	Ser	Val	Gln	Ile	Gly	Ile	Arg	Thr	Glu	His		
			180					185					190				
Ser	Lys	Lys	Leu	Pro	Phe	Thr	Val	Leu	Ser	Ala	Pro	Lys	Val	Asn	Glu		
	195						200					205					
Asp	Ser	Val	Glu	Glu	Thr	Val	Arg	Lys	Ile	Lys	Glu	Thr	Val	Gly	Asn		
	210					215					220						
Met	Pro	Val	Tyr	Leu	Thr	Phe	Asp	Ile	Asp	Cys	Leu	Asp	Pro	Ser	Phe		
225					230					235					240		
Ala	Pro	Gly	Thr	Gly	Thr	Pro	Val	Cys	Gly	Gly	Leu	Ser	Ser	Asp	Arg		
				245					250					255			
Ala	Leu	Lys	Ile	Leu	Arg	Gly	Leu	Thr	Asp	Leu	Asp	Ile	Val	Gly	Met		
			260					265					270				
Asp	Val	Val	Glu	Val	Ala	Pro	Ser	Tyr	Asp	Gln	Ser	Asp	Ile	Thr	Ala		
	275						280					285					

Leu Ala Gly Ala Thr Ile Ala Leu Glu Met Leu Tyr Leu Gln Gly Ala
 290 295 300

Lys Lys Asp
 305

<210> 68
 <211> 1404
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> CDS
 <222> (1)..(1401)

<400> 68
 atg aca ttg ctc aat cta atg ata atg caa gat tac ggt att tcc gtt 48
 Met Thr Leu Leu Asn Leu Met Ile Met Gln Asp Tyr Gly Ile Ser Val
 1 5 10 15
 tgc ctg aca ctg acg ccc tat ttg caa cat gaa cta ttt tcg gct atg 96
 Cys Leu Thr Leu Thr Pro Tyr Leu Gln His Glu Leu Phe Ser Ala Met
 20 25 30
 aaa tcc tat ttt tcc aaa tat atc cta ccc gtt tca ctt ttt acc ttg 144
 Lys Ser Tyr Phe Ser Lys Tyr Ile Leu Pro Val Ser Leu Phe Thr Leu
 35 40 45
 cca cta tcc ctt tcc cca tcc gtt tcg gct ttt acg ctg cct gaa gca 192
 Pro Leu Ser Leu Ser Pro Ser Val Ser Ala Phe Thr Leu Pro Glu Ala
 50 55 60
 tgg cgg gcg gcg cag caa cat tcg gct gat ttt caa gcg tcc cat tac 240
 Trp Arg Ala Ala Gln Gln His Ser Ala Asp Phe Gln Ala Ser His Tyr
 65 70 75 80
 cag cgt gat gca gtg cgc gca cgg caa caa caa gcc aag gcc gca ttc 288
 Gln Arg Asp Ala Val Arg Ala Arg Gln Gln Gln Ala Lys Ala Ala Phe
 85 90 95
 ctt ccc cat gta tcc gcc aat gcc agc tac cag cgc cag ccg cca tcg 336
 Leu Pro His Val Ser Ala Asn Ala Ser Tyr Gln Arg Gln Pro Pro Ser
 100 105 110
 att tct tcc acc cgc gaa aca cag gga tgg agc gtg cag gtg gga caa 384
 Ile Ser Ser Thr Arg Glu Thr Gln Gly Trp Ser Val Gln Val Gly Gln
 115 120 125
 acc tta ttt gac gct gcc aaa ttt gca caa tac cgc caa agc agg ttc 432
 Thr Leu Phe Asp Ala Ala Lys Phe Ala Gln Tyr Arg Gln Ser Arg Phe
 130 135 140
 gat acg cag gct gca gaa cag cgt ttc gat gcg gca cgc gaa gaa ttg 480
 Asp Thr Gln Ala Ala Gln Gln Arg Phe Asp Ala Ala Arg Glu Glu Leu
 145 150 155 160

ctg ttg aaa gtt gcc gaa agt tat ttc aac gtt tta ctc agc cga gac	528
Leu Leu Lys Val Ala Glu Ser Tyr Phe Asn Val Leu Leu Ser Arg Asp	
165 170 175	
acc gtt gcc gcc cat gcg gcg gaa aaa gag gct tat gcc cag cag gta	576
Thr Val Ala Ala His Ala Ala Glu Lys Glu Ala Tyr Ala Gln Gln Val	
180 185 190	
agg cag gcg cag gct tta ttc aat aaa ggt gct gcc acc gcg ctg gat	624
Arg Gln Ala Gln Ala Leu Phe Asn Lys Gly Ala Ala Thr Ala Leu Asp	
195 200 205	
att cac gaa gcc aaa gcc ggt tac gac aat gcc ctg gcc caa gaa atc	672
Ile His Glu Ala Lys Ala Gly Tyr Asp Asn Ala Leu Ala Gln Glu Ile	
210 215 220	
gcc gta ttg gct gag aaa caa acc tat gaa aac cag ttg aac gac tac	720
Ala Val Leu Ala Glu Lys Gln Thr Tyr Glu Asn Gln Leu Asn Asp Tyr	
225 230 235 240	
acc gac ctg gat agc aaa caa atc gag gcc ata gat acc gcc aac ctg	768
Thr Asp Leu Asp Ser Lys Gln Ile Glu Ala Ile Asp Thr Ala Asn Leu	
245 250 255	
ttg gca cgc tat ctg ccc aag ctg gaa cgt tac agt ctg gat gaa tgg	816
Leu Ala Arg Tyr Leu Pro Lys Leu Glu Arg Tyr Ser Leu Asp Glu Trp	
260 265 270	
cag cgc att gcc tta tcc aac aat cat gaa tac cgg atg cag cag ctt	864
Gln Arg Ile Ala Leu Ser Asn Asn His Glu Tyr Arg Met Gln Gln Leu	
275 280 285	
gcc ctg caa agc agc gga cag gcg ctt cgg gca gca cag aac agc cgc	912
Ala Leu Gln Ser Ser Gly Gln Ala Leu Arg Ala Ala Gln Asn Ser Arg	
290 295 300	
tat ccc acc gtt tct gcc cat gtc ggc tat cag aat aac ctc tac act	960
Tyr Pro Thr Val Ser Ala His Val Gly Tyr Gln Asn Asn Leu Tyr Thr	
305 310 315 320	
tca tct gcg cag aat aat gac tac cac tat cgg ggc aaa ggg atg agc	1008
Ser Ser Ala Gln Asn Asn Asp Tyr His Tyr Arg Gly Lys Gly Met Ser	
325 330 335	
gtc ggc gta cag ttg aat ttg ccg ctt tat acc ggc gga gaa ttg tcg	1056
Val Gly Val Gln Leu Asn Leu Pro Leu Tyr Thr Gly Gly Glu Leu Ser	
340 345 350	
ggc aaa atc cat gaa gcc gaa gcg caa tac ggg gcc gcc gaa gca cag	1104
Gly Lys Ile His Glu Ala Glu Ala Gln Tyr Gly Ala Ala Glu Ala Gln	
355 360 365	
ctg acc gca acc gag cgg cac atc aaa ctc gcc gta cgc cag gct tat	1152
Leu Thr Ala Thr Glu Arg His Ile Lys Leu Ala Val Arg Gln Ala Tyr	
370 375 380	

acc gaa agc ggt gcg gcg cgt tac caa atc atg gcg caa gaa cgg gtt	1200
Thr Glu Ser Gly Ala Ala Arg Tyr Gln Ile Met Ala Gln Glu Arg Val	
385 390 395 400	

ttg gaa agc agc cgt ttg aaa ctg aaa tcg acc gaa acc ggc caa caa	1248
Leu Glu Ser Ser Arg Leu Lys Leu Lys Ser Thr Glu Thr Gly Gln Gln	
405 410 415	

tac ggc atc cgc aac cgg ctg gaa gta ata cgg gcg cgg cag gaa gtc	1296
Tyr Gly Ile Arg Asn Arg Leu Glu Val Ile Arg Ala Arg Gln Glu Val	
420 425 430	

gcc caa gca gaa cag aaa ctg gct caa gca cgg tat aaa ttc atg ctg	1344
Ala Gln Ala Glu Gln Lys Leu Ala Gln Ala Arg Tyr Lys Phe Met Leu	
435 440 445	

gct tat ttg cgc ttg gtg aaa gag agc ggg tta ggg ttg gaa acg gta	1392
Ala Tyr Leu Arg Leu Val Lys Glu Ser Gly Leu Gly Leu Glu Thr Val	
450 455 460	

ttt gcg gaa taa	1404
Phe Ala Glu	
465	

<210> 69

<211> 467

<212> PRT

<213> Neisseria meningitidis

<400> 69

Met Thr Leu Leu Asn Leu Met Ile Met Gln Asp Tyr Gly Ile Ser Val
1 5 10 15

Cys Leu Thr Leu Thr Pro Tyr Leu Gln His Glu Leu Phe Ser Ala Met
20 25 30

Lys Ser Tyr Phe Ser Lys Tyr Ile Leu Pro Val Ser Leu Phe Thr Leu
35 40 45

Pro Leu Ser Leu Ser Pro Ser Val Ser Ala Phe Thr Leu Pro Glu Ala
50 55 60

Trp Arg Ala Ala Gln Gln His Ser Ala Asp Phe Gln Ala Ser His Tyr
65 70 75 80

Gln Arg Asp Ala Val Arg Ala Arg Gln Gln Gln Ala Lys Ala Ala Phe
85 90 95

Leu Pro His Val Ser Ala Asn Ala Ser Tyr Gln Arg Gln Pro Pro Ser
100 105 110

Ile Ser Ser Thr Arg Glu Thr Gln Gly Trp Ser Val Gln Val Gly Gln
115 120 125

Thr Leu Phe Asp Ala Ala Lys Phe Ala Gln Tyr Arg Gln Ser Arg Phe
130 135 140

Asp	Thr	Gln	Ala	Ala	Glu	Gln	Arg	Phe	Asp	Ala	Ala	Arg	Glu	Glu	Leu	145	150	155	160
Leu	Leu	Lys	Val	Ala	Glu	Ser	Tyr	Phe	Asn	Val	Leu	Leu	Ser	Arg	Asp	165	170	175	
Thr	Val	Ala	Ala	His	Ala	Ala	Glu	Lys	Glu	Ala	Tyr	Ala	Gln	Gln	Val	180	185	190	
Arg	Gln	Ala	Gln	Ala	Leu	Phe	Asn	Lys	Gly	Ala	Ala	Thr	Ala	Leu	Asp	195	200	205	
Ile	His	Glu	Ala	Lys	Ala	Gly	Tyr	Asp	Asn	Ala	Leu	Ala	Gln	Glu	Ile	210	215	220	
Ala	Val	Leu	Ala	Glu	Lys	Gln	Thr	Tyr	Glu	Asn	Gln	Leu	Asn	Asp	Tyr	225	230	235	240
Thr	Asp	Leu	Asp	Ser	Lys	Gln	Ile	Glu	Ala	Ile	Asp	Thr	Ala	Asn	Leu	245	250	255	
Leu	Ala	Arg	Tyr	Leu	Pro	Lys	Leu	Glu	Arg	Tyr	Ser	Leu	Asp	Glu	Trp	260	265	270	
Gln	Arg	Ile	Ala	Leu	Ser	Asn	Asn	His	Glu	Tyr	Arg	Met	Gln	Gln	Leu	275	280	285	
Ala	Leu	Gln	Ser	Ser	Gly	Gln	Ala	Leu	Arg	Ala	Ala	Gln	Asn	Ser	Arg	290	295	300	
Tyr	Pro	Thr	Val	Ser	Ala	His	Val	Gly	Tyr	Gln	Asn	Asn	Leu	Tyr	Thr	305	310	315	320
Ser	Ser	Ala	Gln	Asn	Asn	Asp	Tyr	His	Tyr	Arg	Gly	Lys	Gly	Met	Ser	325	330	335	
Val	Gly	Val	Gln	Leu	Asn	Leu	Pro	Leu	Tyr	Thr	Gly	Gly	Glu	Leu	Ser	340	345	350	
Gly	Lys	Ile	His	Glu	Ala	Glu	Ala	Gln	Tyr	Gly	Ala	Ala	Glu	Ala	Gln	355	360	365	
Leu	Thr	Ala	Thr	Glu	Arg	His	Ile	Lys	Leu	Ala	Val	Arg	Gln	Ala	Tyr	370	375	380	
Thr	Glu	Ser	Gly	Ala	Ala	Arg	Tyr	Gln	Ile	Met	Ala	Gln	Glu	Arg	Val	385	390	395	400
Leu	Glu	Ser	Ser	Arg	Leu	Lys	Leu	Lys	Ser	Thr	Glu	Thr	Gly	Gln	Gln	405	410	415	
Tyr	Gly	Ile	Arg	Asn	Arg	Leu	Glu	Val	Ile	Arg	Ala	Arg	Gln	Glu	Val	420	425	430	
Ala	Gln	Ala	Glu	Gln	Lys	Leu	Ala	Gln	Ala	Arg	Tyr	Lys	Phe	Met	Leu	435	440	445	

Ala Tyr Leu Arg Leu Val Lys Glu Ser Gly Leu Gly Leu Glu Thr Val
 450 455 460

Phe Ala Glu
 465

<210> 70
 <211> 696
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> CDS
 <222> (1)..(693)

<400> 70
 atg aaa caa tcc gcc cga ata aaa aat atg gat cag aca tta aaa aat 48
 Met Lys Gln Ser Ala Arg Ile Lys Asn Met Asp Gln Thr Leu Lys Asn
 1 5 10 15
 aca ttg ggc att tgc gcg ctt tta gcc ttt tgt ttt ggc gcg gcc atc 96
 Thr Leu Gly Ile Cys Ala Leu Leu Ala Phe Cys Phe Gly Ala Ala Ile
 20 25 30
 gca tca ggt tat cac ttg gaa tat gaa tac ggc tac cgt tat tct gcc 144
 Ala Ser Gly Tyr His Leu Glu Tyr Glu Tyr Gly Tyr Arg Tyr Ser Ala
 35 40 45
 gtg ggc gct ttg gct tcg gtt gta ttt tta tta tta ttg gca cgc ggc 192
 Val Gly Ala Leu Ala Ser Val Val Phe Leu Leu Leu Leu Ala Arg Gly
 50 55 60
 ttc ccg cgc gtt tct tca gtt gtt tta ctg att tac gtc ggc aca acc 240
 Phe Pro Arg Val Ser Ser Val Val Leu Leu Ile Tyr Val Gly Thr Thr
 65 70 75 80
 gcc cta tat ttg ccg gtc ggc tgg ctg tat ggt gcg cct tct tat cag 288
 Ala Leu Tyr Leu Pro Val Gly Trp Leu Tyr Gly Ala Pro Ser Tyr Gln
 85 90 95
 ata gtc ggt tcg ata ttg gaa agc aat cct gcc gag gcg cgt gaa ttt 336
 Ile Val Gly Ser Ile Leu Glu Ser Asn Pro Ala Glu Ala Arg Glu Phe
 100 105 110
 gtc ggc aat ctt ccc ggg tcg ctt tat ttt gtg cag gca tta ttt ttc 384
 Val Gly Asn Leu Pro Gly Ser Leu Tyr Phe Val Gln Ala Leu Phe Phe
 115 120 125
 att ttt ggc ttg aca gtt tgg aaa tat tgt gta tct gtg ggg gta ttt 432
 Ile Phe Gly Leu Thr Val Trp Lys Tyr Cys Val Ser Val Gly Val Phe
 130 135 140
 gct gac gta aaa aac tat aaa cgt cgc agc aaa ata tgg ctg acc ata 480
 Ala Asp Val Lys Asn Tyr Lys Arg Arg Ser Lys Ile Trp Leu Thr Ile

145	150	155	160	
tta ttg act ttg att ttg tcc tgc gcg gtg atg gag aaa atc gcc ggc				528
Leu Leu Thr Leu Ile Leu Ser Cys Ala Val Met Glu Lys Ile Ala Gly				
	165	170	175	
gat aaa gat tgg cga gaa cct gat gcc ggc ctg ttg ttg aat att ttc				576
Asp Lys Asp Trp Arg Glu Pro Asp Ala Gly Leu Leu Leu Asn Ile Phe				
	180	185	190	
gac ctg tat tac gac ttg gct ttc cgc gcc ggc aca ata tgc cgc caa				624
Asp Leu Tyr Tyr Asp Leu Ala Phe Arg Ala Gly Thr Ile Cys Arg Gln				
	195	200	205	
gcg cgc cca cat ttt gga agc agc aaa aaa agc gtc aac atg gca tat				672
Ala Arg Pro His Phe Gly Ser Ser Lys Lys Ser Val Asn Met Ala Tyr				
	210	215	220	
ccg cca act tgc gcc caa gta taa				696
Pro Pro Thr Cys Ala Gln Val				
	225	230		

<210> 71
 <211> 231
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 71
 Met Lys Gln Ser Ala Arg Ile Lys Asn Met Asp Gln Thr Leu Lys Asn
 1 5 10 15
 Thr Leu Gly Ile Cys Ala Leu Leu Ala Phe Cys Phe Gly Ala Ala Ile
 20 25 30
 Ala Ser Gly Tyr His Leu Glu Tyr Glu Tyr Gly Tyr Arg Tyr Ser Ala
 35 40 45
 Val Gly Ala Leu Ala Ser Val Val Phe Leu Leu Leu Leu Ala Arg Gly
 50 55 60
 Phe Pro Arg Val Ser Ser Val Val Leu Leu Ile Tyr Val Gly Thr Thr
 65 70 75 80
 Ala Leu Tyr Leu Pro Val Gly Trp Leu Tyr Gly Ala Pro Ser Tyr Gln
 85 90 95
 Ile Val Gly Ser Ile Leu Glu Ser Asn Pro Ala Glu Ala Arg Glu Phe
 100 105 110
 Val Gly Asn Leu Pro Gly Ser Leu Tyr Phe Val Gln Ala Leu Phe Phe
 115 120 125
 Ile Phe Gly Leu Thr Val Trp Lys Tyr Cys Val Ser Val Gly Val Phe
 130 135 140
 Ala Asp Val Lys Asn Tyr Lys Arg Arg Ser Lys Ile Trp Leu Thr Ile

145		150		155		160
Leu Leu Thr Leu Ile Leu Ser Cys Ala Val Met Glu Lys Ile Ala Gly						
	165			170		175
Asp Lys Asp Trp Arg Glu Pro Asp Ala Gly Leu Leu Leu Asn Ile Phe						
	180			185		190
Asp Leu Tyr Tyr Asp Leu Ala Phe Arg Ala Gly Thr Ile Cys Arg Gln						
	195			200		205
Ala Arg Pro His Phe Gly Ser Ser Lys Lys Ser Val Asn Met Ala Tyr						
	210			215		220
Pro Pro Thr Cys Ala Gln Val						
225				230		

<210> 72
 <211> 2607
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> CDS
 <222> (1)..(2604)

<400> 72	
atg gct gcc aac caa cgt tac cgc aaa ccg ctg ccc ggt acg gat ttg	48
Met Ala Ala Asn Gln Arg Tyr Arg Lys Pro Leu Pro Gly Thr Asp Leu	
1 5 10 15	
gaa tac tac gac gcg cgt gcg gcg tgt gag ggc atc aaa ccc ggc tct	96
Glu Tyr Tyr Asp Ala Arg Ala Ala Cys Glu Gly Ile Lys Pro Gly Ser	
20 25 30	
tac gac aag ctg cct tac acg agc cgc att ttg gcg gag aat ttg gtc	144
Tyr Asp Lys Leu Pro Tyr Thr Ser Arg Ile Leu Ala Glu Asn Leu Val	
35 40 45	
aac cgc gcg gac aaa gtc gat ttg ccg acg ctg caa agc tgg ctg ggt	192
Asn Arg Ala Asp Lys Val Asp Leu Pro Thr Leu Gln Ser Trp Leu Gly	
50 55 60	
cag ctg att gag gga aaa cag gaa atc gac ttt cct tgg tat ccg gcg	240
Gln Leu Ile Glu Gly Lys Gln Glu Ile Asp Phe Pro Trp Tyr Pro Ala	
65 70 75 80	
cgg gtg gtg tgc cac gat att ctg ggg cag acc gcg ttg gtg gat ttg	288
Arg Val Val Cys His Asp Ile Leu Gly Gln Thr Ala Leu Val Asp Leu	
85 90 95	
gca ggt ctg cgc gat gcg att gcc gaa aaa ggc ggc gat cct gcc aaa	336
Ala Gly Leu Arg Asp Ala Ile Ala Glu Lys Gly Gly Asp Pro Ala Lys	
100 105 110	

gtg aat ccg gtg gtg caa acc cag ctc atc gtc gac cac tcg ctg gcg	384
Val Asn Pro Val Val Gln Thr Gln Leu Ile Val Asp His Ser Leu Ala	
115 120 125	
gtg gaa tgc ggc ggc tac gac ccc gat gcg ttc cgc aaa aac cgc gaa	432
Val Glu Cys Gly Gly Tyr Asp Pro Asp Ala Phe Arg Lys Asn Arg Glu	
130 135 140	
atc gaa gac aga cgt aac gaa gac cgt ttc cac ttc atc aac tgg aca	480
Ile Glu Asp Arg Arg Asn Glu Asp Arg Phe His Phe Ile Asn Trp Thr	
145 150 155 160	
aaa acc gct ttt gaa aat gtg gac gtg att ccg gcg ggc aac ggc atc	528
Lys Thr Ala Phe Glu Asn Val Asp Val Ile Pro Ala Gly Asn Gly Ile	
165 170 175	
atg cac caa atc aat cta gaa aaa atg tcg ccc gtc gtc caa gtc aaa	576
Met His Gln Ile Asn Leu Glu Lys Met Ser Pro Val Val Gln Val Lys	
180 185 190	
aac ggc gtg gct ttc ccc gat acc tgc gtc ggc acg gat tcg cac acg	624
Asn Gly Val Ala Phe Pro Asp Thr Cys Val Gly Thr Asp Ser His Thr	
195 200 205	
cca cac gtc gat gcg ctg ggc gtg att tcc gtg ggc gtg ggc gga ttg	672
Pro His Val Asp Ala Leu Gly Val Ile Ser Val Gly Val Gly Gly Leu	
210 215 220	
gaa gcg gaa acc gta atg ctg gga cgc gcg tcc atg atg cgc ctg ccc	720
Glu Ala Glu Thr Val Met Leu Gly Arg Ala Ser Met Met Arg Leu Pro	
225 230 235 240	
gat att gtc ggc gtt gag ctg aac ggc aaa cgg aag gcg ggc att acg	768
Asp Ile Val Gly Val Glu Leu Asn Gly Lys Arg Lys Ala Gly Ile Thr	
245 250 255	
gcg acg gat att gtg ttg gca ctg acc gag ttt ctg cgc aaa gaa cgc	816
Ala Thr Asp Ile Val Leu Ala Leu Thr Glu Phe Leu Arg Lys Glu Arg	
260 265 270	
gtg gtc ggg gcg ttt gtc gaa ttc ttc ggc gag ggc gcg aga agc ctg	864
Val Val Gly Ala Phe Val Glu Phe Phe Gly Glu Gly Ala Arg Ser Leu	
275 280 285	
tct atc ggc gac cgc gcg acc att tcc aac atg acg ccg gag ttc ggc	912
Ser Ile Gly Asp Arg Ala Thr Ile Ser Asn Met Thr Pro Glu Phe Gly	
290 295 300	
gcg act gcc gcg atg ttc got att gat gag caa acc att gat tat ttg	960
Ala Thr Ala Ala Met Phe Ala Ile Asp Glu Gln Thr Ile Asp Tyr Leu	
305 310 315 320	
aaa ctg acc gga cgc gac gac gcg cag gtg aaa ttg gtg gaa acc tac	1008
Lys Leu Thr Gly Arg Asp Asp Ala Gln Val Lys Leu Val Glu Thr Tyr	
325 330 335	
gcc aaa acc gca ggc ttg tgg gca gat gcc ttg aaa acc gcc gtt tat	1056

Ala Lys Thr	Ala Gly Leu Trp	Ala Asp	Ala Leu Lys Thr	Ala Val Tyr	
340		345		350	
ccg cgc gtt ttg aaa ttt gat ttg agc agc gta acg cgc aat atg gca	1104				
Pro Arg Val Leu Lys Phe Asp Leu Ser Ser Val Thr Arg Asn Met Ala					
355	360	365			
ggc ccg agc aac ccg cac gcg cgt ttt gcg acc gcc gat ttg gcc ggc	1152				
Gly Pro Ser Asn Pro His Ala Arg Phe Ala Thr Ala Asp Leu Ala Gly					
370	375	380			
aaa ggc ttg gct aaa cct tac gaa gag cct tca gac ggc caa atg cct	1200				
Lys Gly Leu Ala Lys Pro Tyr Glu Glu Pro Ser Asp Gly Gln Met Pro					
385	390	395		400	
gac ggt gca gtg att att gcc gcg att act tcc tgt acc aat act tcc	1248				
Asp Gly Ala Val Ile Ile Ala Ala Ile Thr Ser Cys Thr Asn Thr Ser					
405	410	415			
aat ccg cgc aac gtt gtc gcc gcc gcg ctg ttg gca cgc aat gcc aac	1296				
Asn Pro Arg Asn Val Val Ala Ala Ala Leu Leu Ala Arg Asn Ala Asn					
420	425	430			
cgc ctc ggc ttg caa cgc aaa cct tgg gtg aaa tct tcg ttt gcc ccg	1344				
Arg Leu Gly Leu Gln Arg Lys Pro Trp Val Lys Ser Ser Phe Ala Pro					
435	440	445			
ggt tca aaa gta gcc gaa atc tat ttg aaa gaa gca gat ctg ctg ccc	1392				
Gly Ser Lys Val Ala Glu Ile Tyr Leu Lys Glu Ala Asp Leu Leu Pro					
450	455	460			
gaa atg gaa aaa ctc ggc ttc ggt atc gtt gcc ttc gca tgt acc acc	1440				
Glu Met Glu Lys Leu Gly Phe Gly Ile Val Ala Phe Ala Cys Thr Thr					
465	470	475		480	
tgt aac ggc atg agc ggc gcg ctg gat ccg aaa atc cag aaa gaa atc	1488				
Cys Asn Gly Met Ser Gly Ala Leu Asp Pro Lys Ile Gln Lys Glu Ile					
485	490	495			
atc gac cgc gat ttg tac gcc acc gcc gta ttg tca ggc aac cgc aac	1536				
Ile Asp Arg Asp Leu Tyr Ala Thr Ala Val Leu Ser Gly Asn Arg Asn					
500	505	510			
ttt gac ggc cgt atc cat ccg tat gcg aaa cag gct ttc ctc gct tcg	1584				
Phe Asp Gly Arg Ile His Pro Tyr Ala Lys Gln Ala Phe Leu Ala Ser					
515	520	525			
cct ccg ttg gtc gtt gcc tac gcg ctg gca ggc agc atc cgt ttc gat	1632				
Pro Pro Leu Val Val Ala Tyr Ala Leu Ala Gly Ser Ile Arg Phe Asp					
530	535	540			
att gaa aac gac gta ctc ggc gtt gca gac ggc aaa gaa atc cgc ctg	1680				
Ile Glu Asn Asp Val Leu Gly Val Ala Asp Gly Lys Glu Ile Arg Leu					
545	550	555		560	
aaa gac att tgg cct acc gat gaa gaa atc gat gcc atc gtt gcc gaa	1728				
Lys Asp Ile Trp Pro Thr Asp Glu Glu Ile Asp Ala Ile Val Ala Glu					

565										570					575					
tat	gtg	aaa	ccg	cag	caa	ttt	cgc	gac	gtt	tat	atc	ccg	atg	ttc	gac	1776				
Tyr	Val	Lys	Pro	Gln	Gln	Phe	Arg	Asp	Val	Tyr	Ile	Pro	Met	Phe	Asp					
580										585					590					
acc	ggc	aca	gcg	caa	aaa	gca	cca	agc	ccg	ctg	tac	gac	tgg	cgt	cca	1824				
Thr	Gly	Thr	Ala	Gln	Lys	Ala	Pro	Ser	Pro	Leu	Tyr	Asp	Trp	Arg	Pro					
595										600					605					
atg	tct	acc	tat	atc	cgc	cgc	cca	cct	tac	tgg	gaa	ggc	gca	ctg	gca	1872				
Met	Ser	Thr	Tyr	Ile	Arg	Arg	Pro	Pro	Tyr	Trp	Glu	Gly	Ala	Leu	Ala					
610										615					620					
ggg	gaa	cgc	aca	tta	agc	ggt	atg	cgt	ccg	ctg	gcg	att	ttg	ccc	gac	1920				
Gly	Glu	Arg	Thr	Leu	Ser	Gly	Met	Arg	Pro	Leu	Ala	Ile	Leu	Pro	Asp					
625										630					635					640
aac	atc	acc	acc	gac	cat	ctc	tcg	cca	tcc	aat	gcg	att	ttg	gca	agc	1968				
Asn	Ile	Thr	Thr	Asp	His	Leu	Ser	Pro	Ser	Asn	Ala	Ile	Leu	Ala	Ser					
645										650					655					
agt	gcc	gca	ggc	gaa	tat	ttg	gca	aaa	atg	ggt	ttg	cct	gaa	gaa	gac	2016				
Ser	Ala	Ala	Gly	Glu	Tyr	Leu	Ala	Lys	Met	Gly	Leu	Pro	Glu	Glu	Asp					
660										665					670					
ttc	aac	tct	tac	gca	acc	cac	cgt	ggc	gac	cac	ttg	acc	gcc	caa	cgc	2064				
Phe	Asn	Ser	Tyr	Ala	Thr	His	Arg	Gly	Asp	His	Leu	Thr	Ala	Gln	Arg					
675										680					685					
gca	acc	ttc	gcc	aat	ccg	aaa	ctg	ttt	aac	gaa	atg	gtg	aga	aac	gaa	2112				
Ala	Thr	Phe	Ala	Asn	Pro	Lys	Leu	Phe	Asn	Glu	Met	Val	Arg	Asn	Glu					
690										695					700					
gac	ggc	agc	gta	cgc	caa	ggt	tcg	ctg	gca	cgc	gtt	gaa	ccc	gaa	ggc	2160				
Asp	Gly	Ser	Val	Arg	Gln	Gly	Ser	Leu	Ala	Arg	Val	Glu	Pro	Glu	Gly					
705										710					715					720
caa	acc	atg	cgc	atg	tgg	gaa	gcc	atc	gaa	acc	tat	atg	aac	cgc	aaa	2208				
Gln	Thr	Met	Arg	Met	Trp	Glu	Ala	Ile	Glu	Thr	Tyr	Met	Asn	Arg	Lys					
725										730					735					
cag	ccg	ctc	atc	atc	att	gcc	ggc	gcg	gac	tac	ggt	caa	ggc	tca	agc	2256				
Gln	Pro	Leu	Ile	Ile	Ile	Ala	Gly	Ala	Asp	Tyr	Gly	Gln	Gly	Ser	Ser					
740										745					750					
cgc	gac	tgg	gct	gca	aaa	ggc	gta	cgc	ctc	gcc	ggc	gtg	gaa	gcg	att	2304				
Arg	Asp	Trp	Ala	Ala	Lys	Gly	Val	Arg	Leu	Ala	Gly	Val	Glu	Ala	Ile					
755										760					765					
gtt	gcc	gaa	ggc	ttc	gag	cgt	atc	cac	cgc	acc	aac	ttg	atc	ggt	atg	2352				
Val	Ala	Glu	Gly	Phe	Glu	Arg	Ile	His	Arg	Thr	Asn	Leu	Ile	Gly	Met					
770										775					780					
ggc	gtg	ttg	ccg	ctg	cag	ttc	aaa	ccg	ggt	acc	aac	cgc	cac	acc	ctg	2400				
Gly	Val	Leu	Pro	Leu	Gln	Phe	Lys	Pro	Gly	Thr	Asn	Arg	His	Thr	Leu					
785										790					795					800

caa ctg gac ggt acg gaa acc tac gac gtt gtc ggc gaa cgc aca ccg	2448
Gln Leu Asp Gly Thr Glu Thr Tyr Asp Val Val Gly Glu Arg Thr Pro	
805 810 815	

cgc tgc gac ctg acc ctt gtg att cac cgt aaa aac ggc gag acc gtc	2496
Arg Cys Asp Leu Thr Leu Val Ile His Arg Lys Asn Gly Glu Thr Val	
820 825 830	

gaa gtc ccc att acc tgc cgc ctc gat acc gca gaa gaa gtg ttg gta	2544
Glu Val Pro Ile Thr Cys Arg Leu Asp Thr Ala Glu Glu Val Leu Val	
835 840 845	

tat gaa gcc ggt ggc gta ttg caa cgg ttt gca cag gat ttt ttg gaa	2592
Tyr Glu Ala Gly Gly Val Leu Gln Arg Phe Ala Gln Asp Phe Leu Glu	
850 855 860	

ggg aac gcg gct tag	2607
Gly Asn Ala Ala	
865	

<210> 73

<211> 868

<212> PRT

<213> Neisseria meningitidis

<400> 73

Met Ala Ala Asn Gln Arg Tyr Arg Lys Pro Leu Pro Gly Thr Asp Leu
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Glu Tyr Tyr Asp Ala Arg Ala Ala Cys Glu Gly Ile Lys Pro Gly Ser
20 25 30

Tyr Asp Lys Leu Pro Tyr Thr Ser Arg Ile Leu Ala Glu Asn Leu Val
35 40 45

Asn Arg Ala Asp Lys Val Asp Leu Pro Thr Leu Gln Ser Trp Leu Gly
50 55 60

Gln Leu Ile Glu Gly Lys Gln Glu Ile Asp Phe Pro Trp Tyr Pro Ala
65 70 75 80

Arg Val Val Cys His Asp Ile Leu Gly Gln Thr Ala Leu Val Asp Leu
85 90 95

Ala Gly Leu Arg Asp Ala Ile Ala Glu Lys Gly Gly Asp Pro Ala Lys
100 105 110

Val Asn Pro Val Val Gln Thr Gln Leu Ile Val Asp His Ser Leu Ala
115 120 125

Val Glu Cys Gly Gly Tyr Asp Pro Asp Ala Phe Arg Lys Asn Arg Glu
130 135 140

Ile Glu Asp Arg Arg Asn Glu Asp Arg Phe His Phe Ile Asn Trp Thr
145 150 155 160

Lys	Thr	Ala	Phe	Glu	Asn	Val	Asp	Val	Ile	Pro	Ala	Gly	Asn	Gly	Ile	
				165					170					175		
Met	His	Gln	Ile	Asn	Leu	Glu	Lys	Met	Ser	Pro	Val	Val	Gln	Val	Lys	
			180					185					190			
Asn	Gly	Val	Ala	Phe	Pro	Asp	Thr	Cys	Val	Gly	Thr	Asp	Ser	His	Thr	
		195					200					205				
Pro	His	Val	Asp	Ala	Leu	Gly	Val	Ile	Ser	Val	Gly	Val	Gly	Gly	Leu	
	210					215					220					
Glu	Ala	Glu	Thr	Val	Met	Leu	Gly	Arg	Ala	Ser	Met	Met	Arg	Leu	Pro	
225					230					235					240	
Asp	Ile	Val	Gly	Val	Glu	Leu	Asn	Gly	Lys	Arg	Lys	Ala	Gly	Ile	Thr	
			245					250						255		
Ala	Thr	Asp	Ile	Val	Leu	Ala	Leu	Thr	Glu	Phe	Leu	Arg	Lys	Glu	Arg	
			260					265					270			
Val	Val	Gly	Ala	Phe	Val	Glu	Phe	Phe	Gly	Glu	Gly	Ala	Arg	Ser	Leu	
		275					280					285				
Ser	Ile	Gly	Asp	Arg	Ala	Thr	Ile	Ser	Asn	Met	Thr	Pro	Glu	Phe	Gly	
	290					295					300					
Ala	Thr	Ala	Ala	Met	Phe	Ala	Ile	Asp	Glu	Gln	Thr	Ile	Asp	Tyr	Leu	
305					310					315					320	
Lys	Leu	Thr	Gly	Arg	Asp	Asp	Ala	Gln	Val	Lys	Leu	Val	Glu	Thr	Tyr	
			325					330						335		
Ala	Lys	Thr	Ala	Gly	Leu	Trp	Ala	Asp	Ala	Leu	Lys	Thr	Ala	Val	Tyr	
			340					345					350			
Pro	Arg	Val	Leu	Lys	Phe	Asp	Leu	Ser	Ser	Val	Thr	Arg	Asn	Met	Ala	
		355					360					365				
Gly	Pro	Ser	Asn	Pro	His	Ala	Arg	Phe	Ala	Thr	Ala	Asp	Leu	Ala	Gly	
	370					375					380					
Lys	Gly	Leu	Ala	Lys	Pro	Tyr	Glu	Glu	Pro	Ser	Asp	Gly	Gln	Met	Pro	
385					390					395					400	
Asp	Gly	Ala	Val	Ile	Ile	Ala	Ala	Ile	Thr	Ser	Cys	Thr	Asn	Thr	Ser	
			405					410						415		
Asn	Pro	Arg	Asn	Val	Val	Ala	Ala	Ala	Leu	Leu	Ala	Arg	Asn	Ala	Asn	
			420					425					430			
Arg	Leu	Gly	Leu	Gln	Arg	Lys	Pro	Trp	Val	Lys	Ser	Ser	Phe	Ala	Pro	
		435					440					445				
Gly	Ser	Lys	Val	Ala	Glu	Ile	Tyr	Leu	Lys	Glu	Ala	Asp	Leu	Leu	Pro	
	450					455					460					

Glu	Met	Glu	Lys	Leu	Gly	Phe	Gly	Ile	Val	Ala	Phe	Ala	Cys	Thr	Thr	
465					470					475					480	
Cys	Asn	Gly	Met	Ser	Gly	Ala	Leu	Asp	Pro	Lys	Ile	Gln	Lys	Glu	Ile	
				485					490					495		
Ile	Asp	Arg	Asp	Leu	Tyr	Ala	Thr	Ala	Val	Leu	Ser	Gly	Asn	Arg	Asn	
			500					505					510			
Phe	Asp	Gly	Arg	Ile	His	Pro	Tyr	Ala	Lys	Gln	Ala	Phe	Leu	Ala	Ser	
		515					520					525				
Pro	Pro	Leu	Val	Val	Ala	Tyr	Ala	Leu	Ala	Gly	Ser	Ile	Arg	Phe	Asp	
	530					535					540					
Ile	Glu	Asn	Asp	Val	Leu	Gly	Val	Ala	Asp	Gly	Lys	Glu	Ile	Arg	Leu	
545					550					555					560	
Lys	Asp	Ile	Trp	Pro	Thr	Asp	Glu	Glu	Ile	Asp	Ala	Ile	Val	Ala	Glu	
				565					570					575		
Tyr	Val	Lys	Pro	Gln	Gln	Phe	Arg	Asp	Val	Tyr	Ile	Pro	Met	Phe	Asp	
			580					585					590			
Thr	Gly	Thr	Ala	Gln	Lys	Ala	Pro	Ser	Pro	Leu	Tyr	Asp	Trp	Arg	Pro	
		595					600					605				
Met	Ser	Thr	Tyr	Ile	Arg	Arg	Pro	Pro	Tyr	Trp	Glu	Gly	Ala	Leu	Ala	
	610					615					620					
Gly	Glu	Arg	Thr	Leu	Ser	Gly	Met	Arg	Pro	Leu	Ala	Ile	Leu	Pro	Asp	
625					630					635					640	
Asn	Ile	Thr	Thr	Asp	His	Leu	Ser	Pro	Ser	Asn	Ala	Ile	Leu	Ala	Ser	
				645					650					655		
Ser	Ala	Ala	Gly	Glu	Tyr	Leu	Ala	Lys	Met	Gly	Leu	Pro	Glu	Glu	Asp	
			660					665					670			
Phe	Asn	Ser	Tyr	Ala	Thr	His	Arg	Gly	Asp	His	Leu	Thr	Ala	Gln	Arg	
		675					680					685				
Ala	Thr	Phe	Ala	Asn	Pro	Lys	Leu	Phe	Asn	Glu	Met	Val	Arg	Asn	Glu	
	690					695					700					
Asp	Gly	Ser	Val	Arg	Gln	Gly	Ser	Leu	Ala	Arg	Val	Glu	Pro	Glu	Gly	
705					710					715					720	
Gln	Thr	Met	Arg	Met	Trp	Glu	Ala	Ile	Glu	Thr	Tyr	Met	Asn	Arg	Lys	
				725					730					735		
Gln	Pro	Leu	Ile	Ile	Ile	Ala	Gly	Ala	Asp	Tyr	Gly	Gln	Gly	Ser	Ser	
			740					745					750			
Arg	Asp	Trp	Ala	Ala	Lys	Gly	Val	Arg	Leu	Ala	Gly	Val	Glu	Ala	Ile	
		755					760					765				

Val Ala Glu Gly Phe Glu Arg Ile His Arg Thr Asn Leu Ile Gly Met
 770 775 780
 Gly Val Leu Pro Leu Gln Phe Lys Pro Gly Thr Asn Arg His Thr Leu
 785 790 795 800
 Gln Leu Asp Gly Thr Glu Thr Tyr Asp Val Val Gly Glu Arg Thr Pro
 805 810 815
 Arg Cys Asp Leu Thr Leu Val Ile His Arg Lys Asn Gly Glu Thr Val
 820 825 830
 Glu Val Pro Ile Thr Cys Arg Leu Asp Thr Ala Glu Glu Val Leu Val
 835 840 845
 Tyr Glu Ala Gly Gly Val Leu Gln Arg Phe Ala Gln Asp Phe Leu Glu
 850 855 860
 Gly Asn Ala Ala
 865

<210> 74
 <211> 1170
 <212> DNA
 <213> *Neisseria meningitidis*

<220>
 <221> CDS
 <222> (1)..(1167)

<400> 74
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 Met Pro Gln Ile Lys Ile Pro Ala Val Tyr Tyr Arg Gly Gly Thr Ser
 1 5 10 15
 aaa ggc gtg ttt ttc aaa cgt tcc gac ctg ccc gag gcg gcg cgg gaa 96
 Lys Gly Val Phe Phe Lys Arg Ser Asp Leu Pro Glu Ala Ala Arg Glu
 20 25 30
 gcg gga agc gca cgc gac aaa atc ctc ttg cgc gta ctc ggc agc ccg 144
 Ala Gly Ser Ala Arg Asp Lys Ile Leu Leu Arg Val Leu Gly Ser Pro
 35 40 45
 gat ccc tac ggc aag cag ata gac ggt ttg ggc aac gcc agc tcg tcc 192
 Asp Pro Tyr Gly Lys Gln Ile Asp Gly Leu Gly Asn Ala Ser Ser Ser
 50 55 60
 acc agc aag gcg gtg att ttg gac aag tcc gaa cgc gcc gat cac gat 240
 Thr Ser Lys Ala Val Ile Leu Asp Lys Ser Glu Arg Ala Asp His Asp
 65 70 75 80
 gtc gat tac ctt ttc ggg caa gtt tcc atc gac aaa cct ttt gtc gat 288
 Val Asp Tyr Leu Phe Gly Gln Val Ser Ile Asp Lys Pro Phe Val Asp
 85 90 95

tgg agt ggc aac tgc ggc aac ctc acc gcc gcc gtg ggc gca ttt gcc	336
Trp Ser Gly Asn Cys Gly Asn Leu Thr Ala Ala Val Gly Ala Phe Ala	
100 105 110	
atc gag caa ggc ttg gtc gat aaa ggc aag att cct tca gac ggc atc	384
Ile Glu Gln Gly Leu Val Asp Lys Gly Lys Ile Pro Ser Asp Gly Ile	
115 120 125	
tgc aca gtc aaa atc tgg cag aaa aac atc ggc aaa acc att att gcc	432
Cys Thr Val Lys Ile Trp Gln Lys Asn Ile Gly Lys Thr Ile Ile Ala	
130 135 140	
cat gta ccg atg caa aac ggc gca gtt ttg gaa aca ggc gat ttt gag	480
His Val Pro Met Gln Asn Gly Ala Val Leu Glu Thr Gly Asp Phe Glu	
145 150 155 160	
ctc gac ggc gta acg ttc ccg gca gcc gaa gta caa atc gaa ttt ctt	528
Leu Asp Gly Val Thr Phe Pro Ala Ala Glu Val Gln Ile Glu Phe Leu	
165 170 175	
gat cca gcc gac ggc gaa ggc agt atg ttc cca acc ggc aat ttg gtc	576
Asp Pro Ala Asp Gly Glu Gly Ser Met Phe Pro Thr Gly Asn Leu Val	
180 185 190	
gat gaa att gat gtg ccg aat ata ggc cgt ttg aaa gcc acg ctc atc	624
Asp Glu Ile Asp Val Pro Asn Ile Gly Arg Leu Lys Ala Thr Leu Ile	
195 200 205	
aac gcg ggc att ccg acc gtt ttc ctg aat gcc gcc gac ttg ggc tac	672
Asn Ala Gly Ile Pro Thr Val Phe Leu Asn Ala Ala Asp Leu Gly Tyr	
210 215 220	
acg ggc aaa gag ttg caa gac gac atc aac aac gat gcc gca gct ttg	720
Thr Gly Lys Glu Leu Gln Asp Asp Ile Asn Asn Asp Ala Ala Ala Leu	
225 230 235 240	
gaa aaa ttc gag aaa atc cgc gct tac ggt gcg ctg aaa atg ggt ctg	768
Glu Lys Phe Glu Lys Ile Arg Ala Tyr Gly Ala Leu Lys Met Gly Leu	
245 250 255	
atc agc gac gta tcc gaa gct gcc gcc cgc gcg cac acg ccg aaa gtc	816
Ile Ser Asp Val Ser Glu Ala Ala Ala Arg Ala His Thr Pro Lys Val	
260 265 270	
gcc ttc gtc gcg ccc gcc gcc gat tac acc gcc tcc agt ggc aaa acc	864
Ala Phe Val Ala Pro Ala Ala Asp Tyr Thr Ala Ser Ser Gly Lys Thr	
275 280 285	
gtg aat gcc gcc gac atc gat ttg ctg gta cgc gcc ctg agc atg ggc	912
Val Asn Ala Ala Asp Ile Asp Leu Leu Val Arg Ala Leu Ser Met Gly	
290 295 300	
aaa ttg cac cac gcg atg atg ggt acc gcc tct gtt gcc att gcg acc	960
Lys Leu His His Ala Met Met Gly Thr Ala Ser Val Ala Ile Ala Thr	
305 310 315 320	

gcc gcc gcc gtg ccc ggt acg ctg gtc aac ctt gcc gca ggc ggc gga 1008
 Ala Ala Ala Val Pro Gly Thr Leu Val Asn Leu Ala Ala Gly Gly Gly
 325 330 335

acg cgt aaa gaa gtg cgc ttc ggg cat cct tcc ggc aca ttg cgc gtc 1056
 Thr Arg Lys Glu Val Arg Phe Gly His Pro Ser Gly Thr Leu Arg Val
 340 345 350

ggt gca gcc gcc gaa tgt cag gac gga caa tgg acg gcc acc aaa gcg 1104
 Gly Ala Ala Ala Glu Cys Gln Asp Gly Gln Trp Thr Ala Thr Lys Ala
 355 360 365

gtt atg agc cgc agc gca cgc gtg atg atg gaa ggt tgg gtc agg gtg 1152
 Val Met Ser Arg Ser Ala Arg Val Met Met Glu Gly Trp Val Arg Val
 370 375 380

ccg gaa gat tgt ttt taa 1170
 Pro Glu Asp Cys Phe
 385

<210> 75
 <211> 389
 <212> PRT
 <213> Neisseria meningitidis

<400> 75
 Met Pro Gln Ile Lys Ile Pro Ala Val Tyr Tyr Arg Gly Gly Thr Ser
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Lys Gly Val Phe Phe Lys Arg Ser Asp Leu Pro Glu Ala Ala Arg Glu
 20 25 30

Ala Gly Ser Ala Arg Asp Lys Ile Leu Leu Arg Val Leu Gly Ser Pro
 35 40 45

Asp Pro Tyr Gly Lys Gln Ile Asp Gly Leu Gly Asn Ala Ser Ser Ser
 50 55 60

Thr Ser Lys Ala Val Ile Leu Asp Lys Ser Glu Arg Ala Asp His Asp
 65 70 75 80

Val Asp Tyr Leu Phe Gly Gln Val Ser Ile Asp Lys Pro Phe Val Asp
 85 90 95

Trp Ser Gly Asn Cys Gly Asn Leu Thr Ala Ala Val Gly Ala Phe Ala
 100 105 110

Ile Glu Gln Gly Leu Val Asp Lys Gly Lys Ile Pro Ser Asp Gly Ile
 115 120 125

Cys Thr Val Lys Ile Trp Gln Lys Asn Ile Gly Lys Thr Ile Ile Ala
 130 135 140

His Val Pro Met Gln Asn Gly Ala Val Leu Glu Thr Gly Asp Phe Glu
 145 150 155 160

Leu Asp Gly Val Thr Phe Pro Ala Ala Glu Val Gln Ile Glu Phe Leu
 165 170 175
 Asp Pro Ala Asp Gly Glu Gly Ser Met Phe Pro Thr Gly Asn Leu Val
 180 185 190
 Asp Glu Ile Asp Val Pro Asn Ile Gly Arg Leu Lys Ala Thr Leu Ile
 195 200 205
 Asn Ala Gly Ile Pro Thr Val Phe Leu Asn Ala Ala Asp Leu Gly Tyr
 210 215 220
 Thr Gly Lys Glu Leu Gln Asp Asp Ile Asn Asn Asp Ala Ala Ala Leu
 225 230 235 240
 Glu Lys Phe Glu Lys Ile Arg Ala Tyr Gly Ala Leu Lys Met Gly Leu
 245 250 255
 Ile Ser Asp Val Ser Glu Ala Ala Ala Arg Ala His Thr Pro Lys Val
 260 265 270
 Ala Phe Val Ala Pro Ala Ala Asp Tyr Thr Ala Ser Ser Gly Lys Thr
 275 280 285
 Val Asn Ala Ala Asp Ile Asp Leu Leu Val Arg Ala Leu Ser Met Gly
 290 295 300
 Lys Leu His His Ala Met Met Gly Thr Ala Ser Val Ala Ile Ala Thr
 305 310 315 320
 Ala Ala Ala Val Pro Gly Thr Leu Val Asn Leu Ala Ala Gly Gly Gly
 325 330 335
 Thr Arg Lys Glu Val Arg Phe Gly His Pro Ser Gly Thr Leu Arg Val
 340 345 350
 Gly Ala Ala Ala Glu Cys Gln Asp Gly Gln Trp Thr Ala Thr Lys Ala
 355 360 365
 Val Met Ser Arg Ser Ala Arg Val Met Met Glu Gly Trp Val Arg Val
 370 375 380
 Pro Glu Asp Cys Phe
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<210> 76
 <211> 2094
 <212> DNA
 <213> *Neisseria gonorrhoeae*

<220>
 <221> CDS
 <222> (1)..(2091)

<400> 76

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ttc gcc tct ggc ttc tgc gcc ctg att tac cag gtc agc tgg cag agg	96
Phe Ala Ser Gly Phe Cys Ala Leu Ile Tyr Gln Val Ser Trp Gln Arg	
20 25 30	
ctt cta ttc agc cac ata ggt atc gat ttg agt tcg att act gtc att	144
Leu Leu Phe Ser His Ile Gly Ile Asp Leu Ser Ser Ile Thr Val Ile	
35 40 45	
att tct gta ttt atg gtc ggc ttg ggt gta ggt gcg tat ttc ggc gga	192
Ile Ser Val Phe Met Val Gly Leu Gly Val Gly Ala Tyr Phe Gly Gly	
50 55 60	
cgc att gct gac cgt ttt cct tca agt atc atc ccc ctg ttt tgc atc	240
Arg Ile Ala Asp Arg Phe Pro Ser Ser Ile Ile Pro Leu Phe Cys Ile	
65 70 75 80	
gct gaa gta tcc atc ggt ctg ttc ggt ttg gta agc aag ggt ctg att	288
Ala Glu Val Ser Ile Gly Leu Phe Gly Leu Val Ser Lys Gly Leu Ile	
85 90 95	
tcc ggc ttg ggg cat ctt tta gtt gag gct gat ttg ccc atc atc gct	336
Ser Gly Leu Gly His Leu Leu Val Glu Ala Asp Leu Pro Ile Ile Ala	
100 105 110	
gct gcc aat ttc ctc tta ttg ctg ctt cct acc ttt atg atg ggc gcg	384
Ala Ala Asn Phe Leu Leu Leu Leu Pro Thr Phe Met Met Gly Ala	
115 120 125	
acc ttg ccc ttg ctg acc tgt ttt ttt aac cgg aaa ata cat aat gtt	432
Thr Leu Pro Leu Leu Thr Cys Phe Phe Asn Arg Lys Ile His Asn Val	
130 135 140	
ggc gag tct atc ggt acc tta tat ttt ttc aac act ttg ggt gcg gca	480
Gly Glu Ser Ile Gly Thr Leu Tyr Phe Phe Asn Thr Leu Gly Ala Ala	
145 150 155 160	
ctc gga tcg ctt gcc gcc gcc gaa ttt ttc tac gtc ttt ttt acc ctc	528
Leu Gly Ser Leu Ala Ala Ala Glu Phe Phe Tyr Val Phe Phe Thr Leu	
165 170 175	
tcc caa acc att gcg ctg aca gcc tgc ctt aac ctt ctg att gct gct	576
Ser Gln Thr Ile Ala Leu Thr Ala Cys Leu Asn Leu Leu Ile Ala Ala	
180 185 190	
tca gta tgc tgc gtt aca gaa agg atg gat atg gtg aac act aaa ccg	624
Ser Val Cys Cys Val Thr Glu Arg Met Asp Met Val Asn Thr Lys Pro	
195 200 205	
aat act agt gtg att aat atg ctt tct ttc ctt acc gga tta ttg agc	672
Asn Thr Ser Val Ile Asn Met Leu Ser Phe Leu Thr Gly Leu Leu Ser	
210 215 220	
ttg ggt ata gaa gtc ttg tgg gta agg atg ttt tcg ttc gca gca cag	720

Leu Gly Ile Glu Val	Leu Trp Val Arg Met Phe Ser Phe Ala Ala Gln	
225	230 235 240	
tcc gtg cct cag gca ttt tca ttt att ctt gcc tgt ttt ctg acc ggt	768	
Ser Val Pro Gln Ala Phe Ser Phe Ile Leu Ala Cys Phe Leu Thr Gly		
245 250 255		
atc gcc gtc ggc gcg tat ttt ggc aaa cgg att tgc cgc agc cgc ttt	816	
Ile Ala Val Gly Ala Tyr Phe Gly Lys Arg Ile Cys Arg Ser Arg Phe		
260 265 270		
gtt gat att ccc ttt atc ggg cag tgc ttc ttg tgg gcg ggt att gcc	864	
Val Asp Ile Pro Phe Ile Gly Gln Cys Phe Leu Trp Ala Gly Ile Ala		
275 280 285		
gat ttt ttg att ttg ggt gct gcg tgg ttg ttg acg ggt ttt tcc ggt	912	
Asp Phe Leu Ile Leu Gly Ala Ala Trp Leu Leu Thr Gly Phe Ser Gly		
290 295 300		
ttc gtc cac cac gcc ggt att ttc att acc ctg tct gcc gtc gtc agg	960	
Phe Val His His Ala Gly Ile Phe Ile Thr Leu Ser Ala Val Val Arg		
305 310 315 320		
ggg ttg att ttc cca ctt gta cac cat gtg ggt acg gat ggc aac aaa	1008	
Gly Leu Ile Phe Pro Leu Val His His Val Gly Thr Asp Gly Asn Lys		
325 330 335		
tcc gga cga cag gtt tcc aat gtt tat ttc gcc aac gtt gcc ggc agt	1056	
Ser Gly Arg Gln Val Ser Asn Val Tyr Phe Ala Asn Val Ala Gly Ser		
340 345 350		
gca ttg ggt ccg gtc ctt atc ggc ttt gtg ata ctt gat ttg ttg tcc	1104	
Ala Leu Gly Pro Val Leu Ile Gly Phe Val Ile Leu Asp Leu Leu Ser		
355 360 365		
acc caa cag att tac ctg ctc atc tgt ttg att tct gct gct gtc cct	1152	
Thr Gln Gln Ile Tyr Leu Leu Ile Cys Leu Ile Ser Ala Ala Val Pro		
370 375 380		
ttg ttt tgt aca ctg ttc caa aaa agt ctc cga ctg aat gca gtg tcg	1200	
Leu Phe Cys Thr Leu Phe Gln Lys Ser Leu Arg Leu Asn Ala Val Ser		
385 390 395 400		
gta gca gtt tcc cta atg ttc ggc atc ctc atg ttc cta ctg ccg gat	1248	
Val Ala Val Ser Leu Met Phe Gly Ile Leu Met Phe Leu Leu Pro Asp		
405 410 415		
tct gtc ttt caa aat att gct ggc cgt ccg gat agg ttg att gaa aac	1296	
Ser Val Phe Gln Asn Ile Ala Gly Arg Pro Asp Arg Leu Ile Glu Asn		
420 425 430		
aaa cac ggc att gtt gcg gtt tac cat aga gat ggt gat aag gtt gtt	1344	
Lys His Gly Ile Val Ala Val Tyr His Arg Asp Gly Asp Lys Val Val		
435 440 445		
tat ggg gcg aat gta tac gac ggc gca tac aat acc gat ata ttc aat	1392	
Tyr Gly Ala Asn Val Tyr Asp Gly Ala Tyr Asn Thr Asp Ile Phe Asn		

450	455	460	
agt gtc aac ggc atc gaa cgt gcc tat ctg cta ccc tcc ctg aag tcc			1440
Ser Val Asn Gly Ile Glu Arg Ala Tyr Leu Leu Pro Ser Leu Lys Ser			
465	470	475	480
ggc ata cgc cgc att ttc gtc gtt gga ttg agt aca ggt tcg tgg gcg			1488
Gly Ile Arg Arg Ile Phe Val Val Gly Leu Ser Thr Gly Ser Trp Ala			
	485	490	495
cgc gtc ttg tct gcc att ccg gaa atg cag tcg atg atc gtt gcg gaa			1536
Arg Val Leu Ser Ala Ile Pro Glu Met Gln Ser Met Ile Val Ala Glu			
	500	505	510
atc aat ccg gca tac cgt agc ctt atc gcg gac gag ccg caa atc gca			1584
Ile Asn Pro Ala Tyr Arg Ser Leu Ile Ala Asp Glu Pro Gln Ile Ala			
	515	520	525
ccg ctt ttg cag gac aaa cgt gtt gaa att gta ttg gat gac ggt agg			1632
Pro Leu Leu Gln Asp Lys Arg Val Glu Ile Val Leu Asp Asp Gly Arg			
	530	535	540
aaa tgg ctg cgt cgc cat cct gat gaa aaa ttc gac ctg att ttg atg			1680
Lys Trp Leu Arg Arg His Pro Asp Glu Lys Phe Asp Leu Ile Leu Met			
	545	550	555
aat tcg act tgg tac tgg cgt gcc tat tcc act aac ctg ttg agt gcg			1728
Asn Ser Thr Trp Tyr Trp Arg Ala Tyr Ser Thr Asn Leu Leu Ser Ala			
	565	570	575
gaa ttt tta aaa cag gtg caa agc cac ctt acc ccg gat ggt att gta			1776
Glu Phe Leu Lys Gln Val Gln Ser His Leu Thr Pro Asp Gly Ile Val			
	580	585	590
atg ttt aat acc acg cac agc ccg cat gct ttt gct acc gcc gta cac			1824
Met Phe Asn Thr Thr His Ser Pro His Ala Phe Ala Thr Ala Val His			
	595	600	605
agt att ccc tat gca tac cgc tac ggg cat atg gta gtc ggc tcg gca			1872
Ser Ile Pro Tyr Ala Tyr Arg Tyr Gly His Met Val Val Gly Ser Ala			
	610	615	620
acc ccg gta gtt ttc cct aat aaa gaa ctg ctc aag caa cgc ctt tcc			1920
Thr Pro Val Val Phe Pro Asn Lys Glu Leu Lys Gln Arg Leu Ser			
	625	630	635
ccg ttg att tgg ccg gaa agc ggc agg cac gta ttt gac agc agc acc			1968
Arg Leu Ile Trp Pro Glu Ser Gly Arg His Val Phe Asp Ser Ser Thr			
	645	650	655
gtg gat gct gca gca caa aag gtt gtc tct cgt atg ctg att cgg atg			2016
Val Asp Ala Ala Ala Gln Lys Val Val Ser Arg Met Leu Ile Arg Met			
	660	665	670
acg gaa cct tcg gct ggg gcg gaa gtc att act gac gat aat atg att			2064
Thr Glu Pro Ser Ala Gly Ala Glu Val Ile Thr Asp Asp Asn Met Ile			
	675	680	685

gta gaa tac aaa tac ggc aga ggg att taa
 Val Glu Tyr Lys Tyr Gly Arg Gly Ile
 690 695

2094

<210> 77
 <211> 697
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 77
 Met Asn Ser Thr Ala Ser Lys Thr Leu Lys Gly Leu Ser Leu Val Phe
 1 5 10 15
 Phe Ala Ser Gly Phe Cys Ala Leu Ile Tyr Gln Val Ser Trp Gln Arg
 20 25 30
 Leu Leu Phe Ser His Ile Gly Ile Asp Leu Ser Ser Ile Thr Val Ile
 35 40 45
 Ile Ser Val Phe Met Val Gly Leu Gly Val Gly Ala Tyr Phe Gly Gly
 50 55 60
 Arg Ile Ala Asp Arg Phe Pro Ser Ser Ile Ile Pro Leu Phe Cys Ile
 65 70 75 80
 Ala Glu Val Ser Ile Gly Leu Phe Gly Leu Val Ser Lys Gly Leu Ile
 85 90 95
 Ser Gly Leu Gly His Leu Leu Val Glu Ala Asp Leu Pro Ile Ile Ala
 100 105 110
 Ala Ala Asn Phe Leu Leu Leu Leu Leu Pro Thr Phe Met Met Gly Ala
 115 120 125
 Thr Leu Pro Leu Leu Thr Cys Phe Phe Asn Arg Lys Ile His Asn Val
 130 135 140
 Gly Glu Ser Ile Gly Thr Leu Tyr Phe Phe Asn Thr Leu Gly Ala Ala
 145 150 155 160
 Leu Gly Ser Leu Ala Ala Ala Glu Phe Phe Tyr Val Phe Phe Thr Leu
 165 170 175
 Ser Gln Thr Ile Ala Leu Thr Ala Cys Leu Asn Leu Leu Ile Ala Ala
 180 185 190
 Ser Val Cys Cys Val Thr Glu Arg Met Asp Met Val Asn Thr Lys Pro
 195 200 205
 Asn Thr Ser Val Ile Asn Met Leu Ser Phe Leu Thr Gly Leu Leu Ser
 210 215 220
 Leu Gly Ile Glu Val Leu Trp Val Arg Met Phe Ser Phe Ala Ala Gln
 225 230 235 240

Ser Val Pro Gln Ala Phe Ser Phe Ile Leu Ala Cys Phe Leu Thr Gly
 245 250 255
 Ile Ala Val Gly Ala Tyr Phe Gly Lys Arg Ile Cys Arg Ser Arg Phe
 260 265 270
 Val Asp Ile Pro Phe Ile Gly Gln Cys Phe Leu Trp Ala Gly Ile Ala
 275 280 285
 Asp Phe Leu Ile Leu Gly Ala Ala Trp Leu Leu Thr Gly Phe Ser Gly
 290 295 300
 Phe Val His His Ala Gly Ile Phe Ile Thr Leu Ser Ala Val Val Arg
 305 310 315 320
 Gly Leu Ile Phe Pro Leu Val His His Val Gly Thr Asp Gly Asn Lys
 325 330 335
 Ser Gly Arg Gln Val Ser Asn Val Tyr Phe Ala Asn Val Ala Gly Ser
 340 345 350
 Ala Leu Gly Pro Val Leu Ile Gly Phe Val Ile Leu Asp Leu Leu Ser
 355 360 365
 Thr Gln Gln Ile Tyr Leu Leu Ile Cys Leu Ile Ser Ala Ala Val Pro
 370 375 380
 Leu Phe Cys Thr Leu Phe Gln Lys Ser Leu Arg Leu Asn Ala Val Ser
 385 390 395 400
 Val Ala Val Ser Leu Met Phe Gly Ile Leu Met Phe Leu Leu Pro Asp
 405 410 415
 Ser Val Phe Gln Asn Ile Ala Gly Arg Pro Asp Arg Leu Ile Glu Asn
 420 425 430
 Lys His Gly Ile Val Ala Val Tyr His Arg Asp Gly Asp Lys Val Val
 435 440 445
 Tyr Gly Ala Asn Val Tyr Asp Gly Ala Tyr Asn Thr Asp Ile Phe Asn
 450 455 460
 Ser Val Asn Gly Ile Glu Arg Ala Tyr Leu Leu Pro Ser Leu Lys Ser
 465 470 475 480
 Gly Ile Arg Arg Ile Phe Val Val Gly Leu Ser Thr Gly Ser Trp Ala
 485 490 495
 Arg Val Leu Ser Ala Ile Pro Glu Met Gln Ser Met Ile Val Ala Glu
 500 505 510
 Ile Asn Pro Ala Tyr Arg Ser Leu Ile Ala Asp Glu Pro Gln Ile Ala
 515 520 525
 Pro Leu Leu Gln Asp Lys Arg Val Glu Ile Val Leu Asp Asp Gly Arg
 530 535 540

Lys Trp Leu Arg Arg His Pro Asp Glu Lys Phe Asp Leu Ile Leu Met
 545 550 555 560
 Asn Ser Thr Trp Tyr Trp Arg Ala Tyr Ser Thr Asn Leu Leu Ser Ala
 565 570 575
 Glu Phe Leu Lys Gln Val Gln Ser His Leu Thr Pro Asp Gly Ile Val
 580 585 590
 Met Phe Asn Thr Thr His Ser Pro His Ala Phe Ala Thr Ala Val His
 595 600 605
 Ser Ile Pro Tyr Ala Tyr Arg Tyr Gly His Met Val Val Gly Ser Ala
 610 615 620
 Thr Pro Val Val Phe Pro Asn Lys Glu Leu Leu Lys Gln Arg Leu Ser
 625 630 635 640
 Arg Leu Ile Trp Pro Glu Ser Gly Arg His Val Phe Asp Ser Ser Thr
 645 650 655
 Val Asp Ala Ala Ala Gln Lys Val Val Ser Arg Met Leu Ile Arg Met
 660 665 670
 Thr Glu Pro Ser Ala Gly Ala Glu Val Ile Thr Asp Asp Asn Met Ile
 675 680 685
 Val Glu Tyr Lys Tyr Gly Arg Gly Ile
 690 695

<210> 78
 <211> 39
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: primer

<400> 78
 gctctagacc accatgtctg aagaaaaatt gaaaatgag 39

<210> 79
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: primer

<400> 79
 cgggatccag aaatggctgg attcgctatc ag 32

<210> 80
 <211> 32
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 80
 gctctagacc accatgaaac acttactcat cg 32

<210> 81
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 81
 cgggatccaa tacgtaggac ttgggtc 27

<210> 82
 <211> 35
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 82
 gctctagacc accatgaaaa aatccctttt cgttc 35

<210> 83
 <211> 31
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 83
 cgggatccat tgoggataaa catattccgc c 31

<210> 84
 <211> 34
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 84

gctctagacc accatgcgaa cgaccccaac cttc

34

<210> 85

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 85

cgggatccag aaccggtagc ctacgccgac

30

<210> 86

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 86

gctctagacc accatgaaca cacgcatcat cgtttc

36

<210> 87

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 87

cgggatccag caacggcctg ccgctttaag

30

<210> 88

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 88

gctctagacc accatgctga cgtttatcgg actg

34

<210> 89

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 89

cgggatccac ggcagaggca cgattcc

27

<210> 90

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 90

gctctagacc accatgggca tccatctcga cttc

34

<210> 91

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 91

cgggatccac aaaagttcca gaaaatctaa ctc

33

<210> 92

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 92

gctctagacc accatgaata gacccaagca acc

33

<210> 93

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 93

cgggatccat gccgcttggg ggaggc

26

<210> 94

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 94

gctctagacc accatgatga atgtcgaggc agag

34

<210> 95

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 95

cgggatccac agtttgcccg acatac

26

<210> 96

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 96

gctctagacc accatgaaat tttttcctgc tcc

33

<210> 97

<211> 62

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 97

gaagatctag aaactgtaat tcaagttgaa ggaagatcta gaaactgtaa ttcaagttga 60
ag 62

<210> 98

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 98

gctctagacc accatgattg aatttgcccg agc

33

<210> 99
 <211> 54
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 99
 cgggatccaa ccctgcgacg agttgcgcg gatccaaccc tgcgacgagt tgcg 54

 <210> 100
 <211> 33
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 100
 gctctagacc accatgcaat acagcacact ggc 33

 <210> 101
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 101
 cgggatccag tcctttttcg caccttgaag 30

 <210> 102
 <211> 34
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 102
 gctctagacc accatggagc agtcgggcaa attc 34

 <210> 103
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

<400> 103
cgggatccaa gctgtttggc gatttcggtg 30

<210> 104
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 104
gctctagacc accatgcaaa acggcggggg aaag 34

<210> 105
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 105
cgggatccag tgcctgcgca gcttggaatc 30

<210> 106
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 106
gctctagacc accatgacat tgctcaatct aatgataatg 40

<210> 107
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 107
cgggatccat tccgcaaata cctgtttcca acc 33

<210> 108
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: primer

 <400> 108
 gctctagacc accatgaaac aatccgcccg 30

 <210> 109
 <211> 28
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 109
 cgggatccat acttgggcgc aacatgac 28

 <210> 110
 <211> 33
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 110
 gctctagacc accatgaatg ttacggttt ccc 33

 <210> 111
 <211> 32
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 111
 cgggatccat ttttagacg tatttttagt cg 32

 <210> 112
 <211> 34
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 112
 gctctagacc accatgatga gtcaacactc tgcc 34

 <210> 113
 <211> 29

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 113
 cgggatccat ccagtttttg ctggaaggc 29

 <210> 114
 <211> 34
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 114
 gctctagacc accatgcctt cgagcaaaaa ctgg 34

 <210> 115
 <211> 32
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 115
 cgggatccat cggttttcaa totcacaaa cg 32

 <210> 116
 <211> 31
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 116
 gctctagacc accatgcacc tatgtggaaa g 31

 <210> 117
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: primer

 <400> 117
 cgggatccat tcaattcgct tcaacaatg 29

<210> 118
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 118
ggactagtcc accatggctg ccaaccaacg ttaccg 36

<210> 119
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 119
gaagatctaa gcgcggttcc cttccaaaaa atc 33

<210> 120
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 120
gctctagacc accatgccgc aaattaaaat tccc 34

<210> 121
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 121
cgggatccaa aaacaatctt ccggcaccc 29

<210> 122
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 122
gctctagacc accatgcgca cgccgttttg ttg 33

<210> 123
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 123
cgggatccat tgggcaacga cgaaggcac 29

<210> 124
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 124
gctctagacc accatgagaa tagagatcac acc 33

<210> 125
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 125
cgggatccat ggctcaatcc tttctgc 27

<210> 126
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 126
gctctagacc accatgattc acgtttcggc agtg 34

<210> 127
<211> 29
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 127

cgggatccaa cctgcttcat gggtgattc

29

<210> 128

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 128

gctctagacc accatgaatt cgaccgcaag taaaac

36

<210> 129

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 129

cgggatccaa atccctctgc cgtatttg

28